

CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

Vol. 12

AUGUST, 1916

No. 2

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MONTHLY BULLETIN

CALIFORNIA STATE BOARD OF HEALTH

Devoted to the Prevention of Sickness and Death

¶ Entered as second-class matter, August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894.

Sent free, on request, to any citizen of California.

WILBUR A. SAWYER, M.D., Secretary and Executive Officer . . . Editor

GUY P. JONES, Morbidity Statistician . . . Associate Editor

The Fight Against Infantile Paralysis.

The entire country is watching the epidemic of infantile paralysis in New York City and is hoping that it will soon be brought under control. Even after the epidemic is over and the population of that city has become immune, the fight to protect other communities will go on. The United States Public Health Service, state boards of health, and municipal health officials are planning to establish one scheme of action and to work together. Only in this way can a successful fight be waged against a disease which is carried almost entirely by healthy persons, whose condition can not be recognized by any ordinary system of inspection. A history of contact with the sick or of sojourn in a city where the disease is epidemic is almost the only information which directs suspicion toward the infantile paralysis carrier.

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The Travels of Infantile Paralysis.

Children in the stages of incubation of poliomyelitis, and more especially adult carriers, transport the disease from a stricken city to the rest of the country. The general exodus of frightened people who wish to save their children from sickness and deformity hastens the dissemination. The highly infectious and virulent New York strain of infantile paralysis was brought to San Francisco in one instance by a four-year-old child who left New York City for San Francisco on June 24th, and began to have symptoms while on the train. A San Francisco girl, fourteen years old, helped care for the child before the disease was recognized and the premises quarantined. Now this girl has come down with infantile paralysis. Such instances show the importance of strict quarantine of those who are sick with infantile paralysis, if we are to escape an epidemic. They also show the need for isolation of the sick child within the household. At present a sick child entering the state would be detected through the inspection service of the State Board of Health on the border and a telegram would be sent to the city health officer to investigate and quarantine the case on arrival.

Shakespeare's Father Arrested For Maintaining Nuisance.

In his recent book "American Public Health Protection," Dr. Henry B. Hemenway makes the following quotation from Bannington's similar publication on public health administration in England: "It is on record that Shakespeare's father was fined in 1552 for violating the bye-laws of the Manor of Stratford-on-Avon by depositing refuse in the street, and again in 1558 for not keeping his gutters clean; and in 1512 a Mayor of Nottingham was presented at the leet court for sundry misdemeanors such as selling herrings that were unfit for food and for beginning a muck hill."

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The Cost of a Drink

A magazine writer recently computed from life insurance statistics that the average cost of a drink of alcoholic beverage was a shortening of life by twenty-five minutes.

We wish someone would estimate the average cost of drinking the untreated water of the lower San Joaquin and Sacramento rivers. The cost would be high in shortening of life, loss of time through sickness, and loss of money through hospital and physicians' bills. Within forty-eight hours two persons have come to the office of the State Board of Health to recite tragedies due to drinking polluted river water. One man reported that his wife was dangerously ill with typhoid fever on account of drinking water from the Sacramento River near Rio Vista. Another man stated that his son had contracted typhoid fever by drinking from the lower San Joaquin River. The boy had returned to his home and infected his mother and brother, and the latter was still dangerously ill. What is the cost of a drink from these large sewage polluted rivers? No one can afford to pay the price.

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A Waste of Costly Gas.

Can it be that agents for patented formaldehyde lamps are stimulating the common desire to fumigate school-rooms during vacations and after epidemics? The State Board of Health is constantly being called upon to compel some school board to fumigate the local school. The State Board of Health has yet to learn of a situation where fumigation of a schoolroom would not be a needless waste of money which could better be spent in increased janitor service under supervision. Frequent surface cleansing of objects within the reach of fingers is the one all-important method of school disinfection. No amount of expensive gas liberated at long intervals can take the place of daily cleaning of the only places which the children can contaminate.

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Where Lies the Danger to the Pupil?

People are the one source of the diseases commonly passed about at school. The pupil is infected by another pupil or the teacher, and the germs of most diseases are carried to the mouth by fingers or objects recently soiled. Of course many of the children are infected away from school, but disease transmission at school is common. The most

efficient method of disease control in schools requires medical school inspection, involving the services of teacher, nurse and physician. Moreover, the children must be taught not to expose themselves needlessly by putting fingers and objects into their mouths, eating with unwashed hands, and drinking from common cups. Secondary in importance to school inspection is the care of the school premises. Water-closets should be cleaned and inspected daily and there should be opportunity for the washing of hands. Individual paper towels, sanitary drinking faucets, and clean schoolrooms are found in the modern sanitary school. Desk tops, doorknobs, and all other surfaces frequently handled should be cleansed often, preferably daily, with soap and water. We would suggest as a slogan for the school hygienist: Less mystery and more understanding! Less incense and more elbow grease! Less guesswork and more expert health supervision!

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Vandalism in the Name of Sanitation. The burning of over one thousand state-owned books by trustees of a school in which there had been cases of diphtheria, has just come to the attention of the State Board of Health. As justification for the act the trustees presented a letter from the local board of health. In the wildest flight of fancy the letter could not be interpreted to demand the destruction of the entire supply of books, though it might have sanctioned the destruction of a few actually used by sick children. In any event the act was precipitate and unjustified and showed lack of information regarding the way in which diphtheria is spread and how it should be fought.

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Why Blame the Books? Schoolbooks are being singled out in a few communities to receive the whole blame for epidemics of scarlet fever, diphtheria, and whooping-cough. As soon as the serious charge is made the clamor arises, "Burn them!" The bonfire satisfies many who do not yet know that burning books and fumigating schoolrooms from now to the end of time would make little difference in the amount of disease among pupils. Disease is mostly transferred in schools from person to person by immediate contact, and freshly contaminated objects play a minor part. Where a book is known to have been grossly soiled by a person actually sick with scarlet fever or diphtheria or other serious communicable diseases, there is no objection to its destruction, for there is a remote possibility that fresh infectious material will be transferred to the mouth of a healthy pupil. This should seldom be necessary if the teacher is careful to exclude children from school when they first show symptoms of "colds" or other contagious sickness. Even these books would probably be safe if not used within a few hours or days by another pupil, but we do not oppose their destruction as an extreme precaution. Why not attack with equal vigor the important problems of school sanitation, such as the exclusion of infectious pupils, the abolishment of common cups and towels and the keeping of all handled surfaces constantly clean? An annual bonfire is no substitute for modern school sanitation.

Pasteurization as Required by State Law Kills Tuberculosis Germs. The efficiency of the method of pasteurization required by the new state milk law has been demonstrated by some experiments just completed by Dr. J. Traum, Pathologist of the

Veterinary Science Division of the Department of Agriculture of the University of California, and Dr. G. H. Hart, Chief of the Dairy Division of the Los Angeles Health Department. They found that the naturally infected milk from a certain herd of cattle which had reacted to the tuberculin test contained live tubercle bacilli. When inoculated into guinea pigs the milk regularly killed them with tuberculosis, except in a few instances when other disease germs in the milk killed them so quickly that tuberculosis could not develop. After careful pasteurization in strict accordance with the provisions of the state law the same milk failed to produce tuberculosis in any of the animals. This showed that the germs had been killed. Strict enforcement of the pasteurization requirements of the new milk law will first save many infants and young children from death from acute bowel infections and will then protect them from milk-borne tuberculosis. A reduction should soon be noted in the infantile death rate and the amount of tuberculosis of glands and bones in children. We have too many hunchbacks and cases of hip disease from our failure to fight milk-borne tuberculosis in the last generation.

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Kent Bill Approved by Senate Committee. The Kent tuberculosis bill is one step nearer enactment into law. The bill was reported out by the Senate Committee on Public Health and National Quarantine, July 27th, with recommendation that the bill pass. The endorsement of the House Committee on Interstate and Foreign Commerce had previously been given. The bill would enable the Public Health Service to take a more active part in the prevention of tuberculosis by controlling the interstate phases of the problem.

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A Dying Wanderer. A physician employed on the Oregon border as Inspector of the State Board of Health was recently asked to board a train and see a man who was apparently dying. It was the old, old story. The man was in the advanced stages of tuberculosis and had decided to go from Portland to Phoenix in pursuit of that chimera, a cure through climate alone. On arrival, he found himself getting worse and was soon penniless. Local authorities gave him transportation to his home and some money, and when seen he was on his way home to die. How long will it be before the government will supervise and control the tremendous interstate movement of persons sick with tuberculosis?

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Importing a Filth Disease. Typhus fever, unknown in California for many years past, is now being brought in by Mexicans. This disease is essentially a filth disease, being spread from person to person by the body louse. There is no reason to fear a wide-

spread epidemic in California under present conditions, because most of our people are thrifty and maintain high standards of personal cleanliness. The increased influx of Mexicans into the border states is bringing disease and poverty. The control of immigration is out of our hands, but communities can do a great deal to improve the living conditions of Mexicans within their borders. Poverty, crowding, and lack of ordinary personal cleanliness must be avoided. No city can afford to permit a focus of squalor and disease to become established within its confines.

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The Common Towel. The roller towel is not the only form of common towel which deserves to be banished for the protection of the public. Any towed not washed in boiling water after use by different people is a common towel, whether it displays grimy hand prints as it hangs from a roller or presents a neat and folded appearance when handed to you. The care of towels and suits at public bathhouses is very important. Both should be sterilized after every use. A case of a serious skin infection following the use of a towel furnished by a public bathhouse has been reported to the board by a returning vacationist. This would have been avoided if the towels and suits had been properly sterilized.

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Disease Germs On Approval. It is hardly believable that stores would send dry goods and other materials to families under quarantine "on approval" and later take them back. This practice is said to be sufficiently extensive to need attention and the health department of San Francisco is planning a special ordinance to prevent the return of goods left in quarantined premises. The present state laws and regulations already forbid taking articles away from quarantined premises. Business competition certainly brings remarkable privileges to the prospective buyer when he is allowed to take goods "on approval" into a quarantined house and later return them.

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Morris Mosquito Abatement District Formed. The Morris Mosquito Abatement District, including all of the incorporated city of Bakersfield and vicinity, has been formed, credit for the organization of the district being given to Dr. C. A. Morris, county health officer of Kern County, by bestowing his name upon the district. The movement for the establishment of such a district began several years ago, when the Bakersfield Women's Club started an active campaign for the eradication of mosquitoes. Aided by the newspapers interest grew rapidly and upon the passage of the Mosquito Abatement District Act in 1915, steps were taken for the formal establishment of the district. Its area covers forty-eight square miles. A supervisor of the work is soon to be appointed and a board of trustees has already been named. This board is composed of Dr. Fred Crease, J. P. Williams, James Curran, W. T. Wells and Chris. Sorenson.

Oroville to Fight Mosquito Pest. Oroville has also just completed the organization of its mosquito abatement district. The trustees have just been appointed, and it remains to be seen which district, Oroville or Bakersfield, will be first to start active operations. The two districts are starting almost simultaneously and the results of their activities will be watched with interest. The Oroville trustees are C. G. Leeson, George C. Mansfield, E. B. Ward, S. E. Rowe and H. C. Cautley.

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Trained Nurses Protect Public Health. R.N. stands for registered nurse and can not be legally placed after the name of anyone who has not met the requirements of the state law regarding education and examination. Trained nurses protect the public health, some by public health work, and many more by maintaining adequate precautions to prevent the spread of disease from their patients. The untrained nurse does not know how to take the proper precautions and should not be depended upon to nurse contagious diseases.

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The Mountains and the Sea. An annual outdoor vacation is good for anyone. The benefit is usually greater than can be laid to a couple of weeks of unusual exercise, fresh air, and change, for better or worse, in diet. The greatest advantage is the mental effect of a complete change in occupation and environment. Californians are fortunate in having free choice between the snow-topped mountains and the breezy ocean shore. Vacations should be enjoyable. Pick out the kind you like, whether it be a strenuous trip over mountain trails or a fortnight of lolling on the beach.

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The Escape of "Sewer Gas." What has become of "sewer gas?" It is never heard of any more. Not very long ago it played an important part in sanitation. Its escape from our sanitary codes marks the beginning of the new era in public health administration which is just reaching the first stage of its development. It was not long ago that the accepted theory regarding the source of typhoid fever was that it is "produced by emanations from decaying organic matter." The correction of most insanitary conditions at that time had to do with the elimination of "sewer gas." What like fallacy can there be in our present beliefs that will take similar flight in the years to come?

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Called it Simply a Sore Throat. People used to be satisfied with the explanation that scarlet fever had been caused by infection from a shawl or some furs which had been laid away for a couple of years since an earlier case in the family. These explanations

are now being taken with a grain of salt by the public and will soon be permanently discarded. In the investigations carried on by the State Board of Health, the unrecognized case is the source of much infection. Some of these missed cases are mild, but others are fairly severe and should have been recognized. A report has just been received of a scarlet fever patient in Berkeley who visited two physicians in Tulare on account of his sore throat and rash, and then, not knowing what was the matter with him, traveled about the state on business. If such cases are not recognized and isolated, the attempts to control scarlet fever become a farce. Physicians are expected to use reasonable care in studying their cases and ascertaining whether a contagious disease is present. When there is question the community should have the benefit of the doubt, and the health officer should be notified.

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Knowledge a Better Guide Than a Nose. To many people insanitary conditions are indicated only by a bad smell. They may unknowingly drink from a highly contaminated water supply which looks, tastes and smells like a pure product. Let there be harmless but odorous algæ in the water, however, and they will refuse it. This is but natural, and only shows that often we follow our noses instead of our knowledge. Most complaints made to health officers have to do with bad smells. The actual conditions favoring the spread of disease are often ignored, the complaint being based upon the bad odor. Nevertheless, people have a right to demand the abatement of a bad odor nuisance. The peace and contentedness of any community depends to a certain extent upon the æsthetics. A bad smell does not always indicate unhealthful conditions, however.

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Pollution of Under-ground Waters Prohibited. The practice of discharging sewage into water-bearing gravels through wells must be discontinued. The California State Board of Health has passed a resolution instructing health officers to take legal steps to cause the abatement of this practice, which is in direct violation of the law. Discharging sewage into water-bearing gravels, through wells, is common where the soil is of such a nature that seepage from shallow cesspools is inadequate for carrying away large volumes of sewage. The pollution of underground waters is particularly flagrant, since it may not always be so easily determined as the pollution of surface supplies.

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California Automobile Clubs Co-operate. The California State Automobile Association and the Automobile Club of Southern California are co-operating with the California State Board of Health in placing placards along highways and streams, warning automobilists to keep their camps in clean condition, to respect the stream pollution law and to beware of any water supply whose purity may be in doubt.

REGULATIONS OF THE CALIFORNIA STATE BOARD OF HEALTH FOR THE PREVENTION OF POLIOMYELITIS (INFANTILE PARALYSIS).

Rule 1. Notification.

Any person in attendance on a case of poliomyelitis (infantile paralysis), or a case suspected of being poliomyelitis, shall report the case immediately to the local health authority, who shall in turn report at least weekly, on the prescribed form, to the State Board of Health, all cases so reported to him. In the absence of local rules permitting notification by telephone, the report to the local health authority shall be in writing.

NOTE 1.—During periods of unusual danger from poliomyelitis the State Board of Health may find it necessary to require immediate telegraphic notification of cases of poliomyelitis by the local health authorities. The board will notify local health authorities when such requirement is instituted.

NOTE 2.—Any physician in attendance on a case of poliomyelitis who fails promptly to report the case to the local health authority is guilty of a misdemeanor, punishable by a fine of not less than twenty-five dollars nor more than five hundred dollars, or by imprisonment for a term of not more than ninety days, or by both such fine and imprisonment. (See Public Health Act, Statutes of 1907, page 893, sections 16 and 21.)

Rule 2. Instructions to household.

It shall be the duty of the physician in attendance on a person having poliomyelitis, or suspected of having poliomyelitis, to instruct the members of the household in precautionary measures for preventing the spread of poliomyelitis.

NOTE 1.—Experiments have shown that the micro-organism which causes poliomyelitis is present in the secretions from the mouths and noses of persons acutely sick with poliomyelitis, and in their bowel discharges. The virus has been demonstrated, also, in the secretions from the noses of healthy persons who have been in contact with the sick. On the basis of present knowledge it appears that the usual method of transmission of poliomyelitis is probably as follows: A person sick from poliomyelitis, or a healthy carrier, enters a community and comes in contact with a number of people. His infectious nasal and mouth secretions become transferred to their mouths or noses and the germs find conditions favorable to their multiplication. Most, or all, of these persons remain well or at least fail to develop characteristic symptoms of poliomyelitis. They in turn spread the infection to others, chiefly through the usual contacts of ordinary business and social life. In the mean time, here and there, usually in widely-separated locations, the infection is transmitted to a susceptible person, most commonly a child, who develops the characteristic paralysis, showing that there has been serious damage to the central nervous system. It seems that the infection in adults tends to persist for a time in their noses without extending to the central nervous system, while in young children the infection not infrequently invades the brain and spinal cord and causes serious destruction of nerve tissue, producing paralysis. The difficulty in controlling poliomyelitis lies in the large number of healthy carriers who are the sources of infection in nearly all cases.

NOTE 2.—The following instructions are required under Rule 2:

1. If the patient is not removed at once to a hospital, he shall have a separate bed in a room screened against flies.
2. All persons, except those having the necessary care of the patient, shall be excluded from the sick room.
3. Animals shall be excluded from the sick room.
4. The room should be kept well aired and clean. It should be freed from unnecessary carpets, draperies, and furniture before the patient is placed in it. Dust should be avoided by frequent moist cleansing of woodwork and floors.
5. The person caring for the patient shall avoid coming in contact with any other person within the household or elsewhere.

6. The person having the care of the patient shall wear a washable outer garment and shall thoroughly wash the hands with soap and water after handling the patient or any object which he may have contaminated. On leaving the room in which the patient is isolated, the attendant shall take off the washable outer garment and leave it in the room until disinfected.
7. All discharges from the nose and mouth shall be burned or disinfected. It is recommended that these discharges be received on pieces of gauze or other soft cloth and be dropped in a paper bag which is conveniently placed. The bag and its contents can easily be burned.
8. Objects which may have been contaminated by the patient shall be disinfected before being removed to any place where they might become possible sources of infection.
 - (a) Clothing and bedding, including the washable outer garment of the attendant, should be boiled in water or soaked for one hour in 10 per cent formalin solution, before being sent to the laundry.
 - (b) Dishes and other utensils should be boiled in water or soaked for one hour in 10 per cent solution of formalin (1 part in 10).
 - (c) Remnants of food should be burned, or, if liquid, disinfected by boiling, or adding an equal volume of a 10 per cent solution of formalin and allowing to stand for one hour.
9. The feces, urine, and other discharges from the patient shall be immediately disinfected. The following methods are recommended:
 - (a) *Disinfection by heat.* Pour about a quart of hot water into the receptacle containing the excreta, and then a heaping cupful of fresh quicklime (calcium oxide). Cover the receptacle and allow it to stand for two hours. Sufficient heat will be generated to kill the poliomyelitis organism.
 - (b) *Chemical disinfection.* Mix with an equal quantity of 10 per cent formalin solution, thoroughly breaking up the masses; cover, and allow to stand at least an hour.

Rule 3. Investigation of case.

Upon being notified of a case of poliomyelitis, or a case suspected of being poliomyelitis, the local health authority shall make an investigation which shall include an inquiry regarding the probable source of the infection. If this source of infection is outside his jurisdiction, he shall notify the State Board of Health, in order that it may inform the health authority (local or state) within whose jurisdiction the infection was probably contracted. The local health authority shall determine that the instructions specified in Rule 2 are understood and observed, and in the event of their nonobservance, shall take proper legal steps for their enforcement.

NOTE 1.—The record of the health officials' investigation should include the name, address, sex, occupation, and age of the patient; the dates of first symptoms, of onset of paralysis, and recovery; the severity of the paralysis, and its distribution; the relation of the case to previous cases or to persons who had been in contact with previous cases; the probable location of the patient when infected; places visited by the patient during a period of two months before the onset (giving dates); dates of instituting and releasing quarantine; condition of the premises with regard to crowding and insanitary conditions.

Rule 4. Quarantine.

If the local health authority, upon making the investigation prescribed in Rule 3, is satisfied that the case is one of poliomyelitis, or is strongly suggestive of poliomyelitis, he shall establish a quarantine by affixing a placard in a conspicuous place at the principal entrance to the premises. Until removal of the placard is authorized by the local health authority, no person shall enter or leave the premises or remove

any article therefrom without the permission of the local health authority.

NOTE 1.—The placard specified in Rule 4 shall be in the following form, in which the name of the disease shall be in letters not less than two and one-half inches in height:

POLIOMYELITIS (INFANTILE PARALYSIS).

These premises are declared to be in a state of quarantine. All persons are forbidden to enter or leave these premises or to remove any articles therefrom without the permission of the local health authority.

Date -----

Local Health Authority.

NOTE 2.—Until such time as a positive diagnosis is made in cases strongly suggestive of poliomyelitis, the word "suspected" may precede the word "Poliomyelitis" on the placard specified in Rule 4.

NOTE 3.—The quarantined premises will ordinarily be a dwelling house with its surrounding yard. Under certain circumstances it is not necessary to quarantine an entire building, as the part in which poliomyelitis is present may have a separate front and rear entrance and may be so constructed that persons can not enter directly from another part of the building. If the local health authority, upon investigation, finds that the conditions are such that the health of the community would be sufficiently safeguarded, he may limit the quarantine to that part of the building which is the separate abode of an entire household, as, for example, a flat or a suite of rooms in a hotel. All cases in hotels, rooming houses, and lodging houses, must be removed to a hospital, except when in the judgment of the health officer they can be properly isolated or quarantined in such hotel, rooming house, or lodging house. When a portion of a dwelling is quarantined, the placard must be conspicuously placed at the principal entrance of the part quarantined.

Rule 5. Contacts.

Persons who have been in frequent contact with the patient and are members of the same household shall be subject to the quarantine until it is terminated, except that the local health authority may, in his discretion and with the approval of the State Board of Health, exclude the wage-earner from the area of quarantine, on condition that adequate precautions shall be observed.

Persons who have come in contact with an acute case of poliomyelitis and who are not members of the same household shall be kept under observation by the local authority for a period of twenty days and shall not be permitted to engage in any occupation or practice which would bring them in contact with large numbers of persons, especially children. The use of common towels, or common drinking or eating utensils, is forbidden.

If any of those who have come in contact with a poliomyelitis patient contemplate leaving the jurisdiction of the local health authority within thirty days after the last exposure, the local health authority shall notify the State Board of Health of their names and destinations, and shall at once furnish the same information to the local health authority at the point of destination.

When persons come into the area of jurisdiction of a local health authority from a region in which poliomyelitis is prevalent, the health officer shall regard them as contacts and shall keep them under observa-

tion for a period of twenty days after arrival, and shall subject them to the restrictions provided above for contacts:

NOTE 1.—At times of unusual epidemics, outside the state or within its boundaries, the State Board of Health will, if necessary, institute a system of inspection of travelers and will notify local health officers at the point of destination regarding poliomyelitis cases, suspected cases, contacts, or suspected contacts. This notification may be a telegraphic or written notice from an officer of the State Board of Health, or it may be a notice from a railway official co-operating with the State Board of Health. On receiving such a notice the health officer shall investigate and take whatever steps are necessary to protect the public. Persons from areas in which poliomyelitis is epidemic shall be kept under observation for twenty days and otherwise restricted as provided for contacts in Rule 5. Acute cases and suspected cases of poliomyelitis in new arrivals should be rigidly quarantined to prevent the disease from gaining a foothold.

NOTE 2.—The following is the text of a notification card for use by railway conductors and station agents in reporting suspected poliomyelitis contacts to local health officials. The rules printed on the card were adopted by the California State Board of Health on August 5, 1916:

(Face of card.)

CALIFORNIA STATE BOARD OF HEALTH.

IN ORDER TO PREVENT THE INTRODUCTION OF INFANTILE PARALYSIS INTO THE STATES OF OREGON, MONTANA, IDAHO, WASHINGTON AND CALIFORNIA, PASSENGERS FROM INFECTED POINTS MUST FILL OUT THESE CARDS.

Starting point of journey-----
City. State.

Date of departure-----

Destination -----
Street address. City. State.

If my address, after arrival, is different from the above, I will at once notify the local health officer of my new address.

Signature of passenger -----

Falsification of this certificate or violation of these rules constitutes a misdemeanor.

(Reverse of card.)

Notice to Conductor.

1. Passengers from New York or New Jersey, or from any point designated by the State Board of Health as a district infected with poliomyelitis, must fill out this card and return to conductor.

2. This card must be given to the agent or station master at the place marked "destination of passenger."

Notice to Agent or Station Master.

This card must be delivered immediately to the health officer in charge of the district where station is located.

Notice to Health Officer.

The passenger named on this card must be kept under observation over a period of twenty days, after which this card must be mailed to the State Board of Health, marked "Free from infection." Consult the pamphlet on the Regulations of the California State Board of Health for the Prevention of Poliomyelitis.

Statement of Conductor.

The undersigned, who is conductor of train No. -----, R. R., hereby certifies that the signature of the passenger on the reverse side corresponds with the name on the ticket presented.

Date -----

Conductor

Rule 6. Release from quarantine.

The period of quarantine shall be not less than thirty days from the beginning of the disease. When quarantine is terminated the patient and attendants shall bathe and wash their hair with soap and water and put on clean clothes, and the objects in the area of isolation shall be disinfected. The local health authority shall determine the minimum amount of disinfection required and shall see that it is carried out. (See directions for disinfection.)

The patients and contacts shall not attend school or public gatherings for a period of three weeks after release from quarantine.

NOTE 1.—Disinfection of the objects in the area of isolation is of less importance than the control of convalescent cases and contacts who may have become carriers.

Rule 7. Precautions by the public.

During an epidemic of poliomyelitis, children under fifteen years of age shall not be allowed to congregate in public places, and shall be kept, as far as possible, on their own premises, away from contact with members of other families. The public should be instructed by the health authorities regarding the danger from the use of common drinking or eating utensils and from careless personal habits.

NOTE 1.—Children should be taught to wash their hands before each meal, after each visit to the toilet, and before going to bed, and to keep their fingers out of their mouths or nostrils. They should be instructed to hold a handkerchief over their mouths when coughing or sneezing. All persons, at the time of an epidemic, should avoid contacts capable of transferring the infections, such as kissing or playing with babies and small children.

DIRECTIONS FOR DISINFECTION.

Disinfection, while of much less importance than the control of persons who harbor the germs of poliomyelitis, nevertheless should be performed whenever a case is released from quarantine. This disinfection should be a thorough cleaning of the entire area of isolation. This cleaning should consist in the scrubbing with soap and water of all woodwork and furniture which can be reached by persons in the room. There is no necessity for washing ceilings or the upper parts of high walls. As far as possible, a sick room should not contain upholstered furniture, carpets and hangings. If such objects are present in the room, they should either be fumigated or exposed to the effects of sunshine and drying for several days. When the conditions in the room indicate marked contamination with fresh, infectious material, as when a case has just died, or has been removed from a room in which the proper precautions were not observed, fumigation may be found necessary as a protection to those who will carry out the proper cleansing of the rooms.

If a room is fumigated for poliomyelitis, formaldehyde gas, in the presence of water vapor, should be used. After twelve hours the room should be opened and aired, and, if the remaining formaldehyde gas is oppressive, a little ammonia should be sprayed in the air. The room should then be thoroughly cleaned.

RURAL SANITATION.

EFFECTIVE CO-OPERATION.

Many federal, state and local agencies are combining forces to improve health conditions in our rural districts. The state has never before seen such concerted action in this work.

Even our high mountains and vast forests are no longer to be neglected, for the United States Forest Service has joined with the State Board of Health in organizing a system of sanitary administration which will protect the thousands of campers who visit the National Forests in California and also the hundreds of thousands who drink from the streams originating in the forests.

The district forester and also every forest supervisor in California has been appointed an inspector of the State Board of Health, without salary from the state, and they have under them an adequate force of forest rangers. It is for the special needs of the forest supervisors and rangers that this circular is being issued, but it is hoped that the information it contains will be of use also to campers, educators, farmers, lumbermen and others who are responsible under rural conditions, for the health of employees, pupils or families.

Certain conditions and combinations of conditions constitute a menace to health. Every citizen should receive information, through demonstration as well as by precept, which will enable him to recognize the more dangerous insanitary conditions. He should be shown also how to change unfavorable conditions to those that are conducive to health. He should know where to turn for authoritative information and official assistance.

Those who dwell in the mountains or forests are usually far from health officials, and may scarcely be aware that the state cares whether they remain well or endanger the health of others, and has made provision for health protection even in the sparsely settled districts and the vast high vacation ground which is under snow much of the year.

OUTLINE OF HEALTH MACHINERY.

The following is a brief outline of the machinery which has been provided for the protection of the public health throughout California.

The State Board of Health is the principal health agency in California. It co-ordinates with, and, within broad limits, directs the activities of local health officers. When in doubt as to the proper official to address relative to public health matters, the citizen should write to the State Board of Health, Sacramento.

The State Board of Health has broad powers for investigating and controlling preventable diseases, abating nuisances, establishing quarantine, destroying dangerous materials, collecting statistics regarding disease, deaths and births, enforcing laws regarding the preparation and sale of foods and drugs, preparing and distributing vaccines, inspecting and subsidizing county tuberculosis hospitals, enforcing laws regarding stream pollution and sewage disposal, examining and registering nurses, and adopting and enforcing rules for the execution of its duties.

The matters which are of special interest to the lay sanitarian in the mountains are those which deal with the control of preventable disease

and the abatement of nuisances. Those who wish to consult the law on the powers and duties of the state and local health boards and officials should send to the State Board of Health, Sacramento, for the booklet entitled "General Health Laws."

All incorporated towns and cities are required to have health officers, but the local health official of greatest importance in rural sanitation is the county health officer. He is appointed by the board of supervisors and is paid by the county. It is his duty to enforce all county ordinances relating to sanitary matters, all state statutes relating to public health, and all rules of the State Board of Health. His jurisdiction extends to all of the county outside of incorporated cities. Citizens of the rural districts should refer matters relative to unhealthful conditions or public nuisances to the county health officer. Where it does not seem possible to secure adequate protection of the public health through the county health officer, the matter can be taken up direct with the State Board of Health.

In the national forests, campers and others, on discovering insanitary conditions, will usually find it difficult to report to a distant county health officer. They should notify the nearest ranger, or, even better, the forest supervisor. As inspector of the State Board of Health, the supervisor has power to order the abatement of insanitary conditions. If the services of sanitary engineers, epidemiologists or bacteriologists are needed, or if action by the county health officer or the State Board of Health seems necessary, the forest supervisor will be in a position to send messages out over the telephone.

Rangers discovering insanitary conditions, or receiving information about them, should take the matter up with the forest supervisor who can give instructions in his official capacity as inspector of the State Board of Health. Moreover, in the same capacity, he has the power of inspection and examination of places and things, in and near the national forests, with a view to discovering insanitary conditions and bringing about their correction.

SIGNS OF DISEASE-PRODUCING CONDITIONS.

In this publication certain common unhealthful conditions are described and commented upon briefly. Methods of correction are suggested and reference is made to available circulars of information. In addition, the procedure for getting official assistance in removing conditions dangerous to health is outlined.

1. Sewage entering streams.

Sewage from towns or dwellings must not be permitted to enter streams unless a permit from the State Board of Health is held by the municipality, corporation, or individual responsible. In the mountains, where are the sources of much of our drinking water, such permits are seldom, if ever, given, and the problem consists of excluding from the streams all sewage, and direct drainage from houses, corrals, pigpens, etc. The outlets of discharge pipes are often concealed by vegetation, but they can usually be found by careful inspection of the banks at the point where sewage disposal would be most convenient. It is unlawful for any one to put sewage, privies, the carcasses of dead animals, or

offal of any kind in streams whose waters are used for drinking purposes, or upon their banks.

A privy located over a stream or in such a situation that the contents can be washed into the stream, or can easily seep into it, is a source of great danger.

Well-worn paths, and the presence of toilet paper and excreta will sometimes show that campers and others are making a practice of repairing to the dry bed of a stream or its banks to deposit excrement, thus jeopardizing the health of campers farther down the stream.

Danger: Pollution of drinking water with the excreta of human beings, even when slight, is capable of producing typhoid fever or dysentery in persons drinking the water just as soon as a "carrier" or convalescent from one of these diseases is the source of pollution. Remember that our cold, swiftly flowing, mountain streams do not purify themselves to any appreciable extent.

Correction: Have all privies over streams or on the banks demolished by the owner, following the procedure outlined under section 10 of this circular on "nuisances." Have all pit privies located away from streams, so that the contents can not be washed into streams or seep into them.

If the bed or banks of a stream are being soiled with human excrement, warn the users and post the sign of the State Board of Health and the forest service warning against the pollution of streams. Compel camps to provide a trench away from the stream for burying excreta, or some other equally safe arrangement.

If sewage enters a stream the people interested should be compelled to make other provisions for sewage disposal at once. If a cesspool is dug, it should be placed where the water can not easily seep into the stream. The larger problems of sewage disposal should be referred to the Bureau of Sanitary Engineering for advice or investigation.

For details regarding the construction and location of privies, cesspools, and sewage disposal plants, consult the pamphlet of the State Board of Health entitled "Sanitation in the Mountains." Copies can be obtained for distribution.

2. Wells with leaky curbing, or badly located.

Wells, especially shallow wells, so placed that the drainage from privies, sewer pipes, or cesspools can enter them, should not be used for drinking purposes. Wells should be so curbed and tightly covered that no surface water, or water spilled at the pump, can enter it.

Danger: Wells receiving pollution containing human excrement may infect large numbers of persons drinking the water, causing serious epidemics of typhoid fever or dysentery.

Correction: If the well is dangerously polluted, it should be declared unfit for drinking purposes and be labeled with the State Board of Health sign reading "*Danger. Do not drink this water without boiling it.*" If there is a question regarding the pollution, the drinking water should be boiled until the well-water can be tested bacteriologically at the sanitary engineering laboratory of the State Board of Health. Supervisors may obtain ice-boxes, sterile containers, and directions for shipping samples from the Director, Bureau of Sanitary Engineering, Berkeley. When a well is found to be polluted a new and safe supply should be found as soon as possible.

3. Contamination of carried or stored water.

Water carried in canteens, jugs, milk cans or barrels for drinking or other domestic purposes should be obtained from sources known to be free from pollution. Where such water is not available the drinking supply should be boiled. Canteens and jugs which are used in common by several persons should not be put to the mouth, and individual cups should be used. Larger containers should be kept covered and the dipping of water should not be permitted, as pollution from soiled hands is very likely. Water casks should be provided with a faucet from which the water can be drawn. Carefully protected water may remain safe for weeks, but it is best to replenish the supply often. It will then be more palatable.

Danger: Typhoid, dysentery, and other water-borne diseases may be contracted if stored water comes in contact with hands. Diphtheria, scarlet fever, colds, and a long list of other diseases may be spread by the mouthing of a common jug or canteen.

Correction: Insist on proper protection of stored water, as suggested above.

4. Carelessness in producing and handling milk.

Cows which look sick or emaciated, herds that have not been tuberculin tested, dirty or sickly persons handling the milk, communicable disease on the premises, numerous flies around the barns and milk house, dirty and exposed utensils, polluted water supply, general insanitary conditions, evidence of carelessness, and early souring of milk, are all signs that the supply is not safe. Much sickness among children and adults using the milk, especially serious diarrhoea among babies and explosive outbreaks of typhoid fever or scarlet fever among children and adults should lead to suspicion.

Danger: Deaths among infants from bowel troubles, tuberculosis of the bones and glands of children, and typhoid fever and scarlet fever in adults are among the possible results of an impure milk supply.

Correction: In emergencies, where disease appears to be coming from the dairy, the milk supply should be cut off or should be pasteurized under supervision, or boiled before use. A circular on "The Production of Pure Milk" gives rules regarding the enforcement of the state law requiring tuberculin testing or pasteurization. This circular can be obtained from the State Board of Health. Farmers' Bulletin No. 602 on "Production of Clean Milk," issued by the United States Department of Agriculture, Washington, D. C., furnishes much useful information. Report insanitary dairies to the State Dairy Bureau or the State Board of Health. All cases of known or suspected typhoid fever, scarlet fever, or diphtheria on a dairy farm should be reported at once to the county health officer or the State Board of Health.

5. Manure piles near habitations or dairies.

Flies breed in manure piles. A pile of horse manure may contain millions of the larvæ. The flies may be a factor in spreading disease, as will be explained in the next paragraph.

6. Numerous flies.

Numerous house flies about dwellings may result in the mechanical transfer of infectious material from human bowel discharges and the discharge from sores or people's mouths, noses, eyes. House flies in the

kitchen, dining-room and pantry are especially dangerous. Around barns the stable fly may be common. It can be recognized by its beak for blood-sucking purposes. It is not common in houses and its habits make it less likely to transfer human disease.

Danger: Infection of food with the germs of typhoid and dysentery carried by flies from human excreta. Infection with diseases of nose and throat and eyes by flies carrying material from diseased persons.

Correction: Destroy the breeding places by removing manure at least weekly from all stables near dwellings. Barns should be located far from cook-houses and mess-tents. Cook-houses and dining-rooms should be effectively screened. See that privies are made fly-tight as required in a later section on "Insanitary privies." Follow the directions contained in Special Bulletin No. 9 of the State Board of Health on "Malaria." It contains a section on "Flies—Their Habits and Control."

7. Numerous mosquitoes, and standing water.

Numerous mosquitoes mean that there is nearby, standing or sluggish water which is serving as a breeding place. Wrigglers, the larva stage of the mosquito, can usually be found on search. They show the source of the mosquitoes. Horse troughs, water barrels, and pools around leaky irrigating ditches are often responsible for mosquitoes.

Danger: Anopheles mosquitoes are capable of transferring malaria from a person having the disease, or a malaria "carrier," to well persons. Malaria is transmitted in no other way. Where conditions are favorable to the breeding of anopheles mosquito, malaria often becomes a very serious disease, attacking most of the inhabitants. "Chills and Fever" when appearing as a community disease is usually malaria.

Correction: Where possible have drainage conditions altered so that there will be no standing pools. Otherwise they should be oiled repeatedly as described on page 10 of circular No. 9. Have horse troughs and other water containers inspected occasionally. They should be emptied once in ten days. Have grass removed from irrigating ditches near dwellings or towns. If top-minnows would be useful in destroying mosquito larvæ in large pools or sluggish streams, consult the State Board of Health or the State Fish and Game Commission relative to procuring the fish. If mosquito breeding can not be controlled it would be well to remove the camp or dwellings to a point away from standing water. Circular No. 9, entitled "Malaria," contains a section on "Malaria and Mosquito Control," the full text of the Mosquito Abatement Districts Act, and the Regulations of the State Board of Health for the Prevention and Control of Malaria.

8. Pallor and sluggishness or weakness of inhabitants.

Pallor usually indicates deficiency in the coloring matter of the blood and is called anemia. If it appears in few individuals in the community, no conclusions can be drawn by the layman. If many people are pale and sickly, and if there is a tradition that people get sick soon after coming to the town, the trouble may be malaria or hookworm, or other preventable disease needing investigation. If the trouble is malaria, there are usually some people subject to pronounced chills and there is usually plain evidence of numerous mosquitoes and

also standing water. Large sales of quinine by druggists or numerous signs advertising malaria remedies would lead one to suspect the presence of malaria in a community. Hookworm is seldom found in California except among miners. In a mining community pallor would suggest hookworm and warrant a special investigation. A circular regarding hookworm may be secured from the State Board of Health.

Danger: Malaria and hookworm are community diseases and there will be new cases unless the conditions favoring the transfer of infection are changed.

Correction: Malaria is corrected by mosquito abatement. (See section 7.) Hookworm is prevented by the treatment of the people who are spreading the disease and by the adoption of precautions in the mines and elsewhere to prevent pollution of the soil with human bowel discharges. The State Board of Health should be notified if hookworm is prevalent in any community, so that the situation may be investigated and controlled. The laboratory of the Bureau of Communicable Diseases in Berkeley will make laboratory tests of blood from suspected cases of malaria or feces from suspected cases of hookworm, if the specimens are sent by physicians or health officials in the regular containers furnished by the bureau.

9. Insanitary privies.

Pit privies are common in rural districts. In many places they are well adapted to the conditions. They should always be located away from streams and wells; they should be kept clean, and should be fly-tight. Specifications for a sanitary pit privy are contained in the circular "Sanitation in the Mountains."

Danger: The insanitary privy permits flies to have access to the contents of the pit and to carry disease germs on their bodies to human food. The dirty privy is a place where excrement may soil the hands of persons visiting it and later infect their food. The badly-located privy may infect a drinking water supply.

Correction: Demolish or move and refill the vault of a badly-located privy. Permit no privy to remain over a stream or in the bed of a stream. Have insanitary privies made sanitary in accordance with the directions in the pamphlet on "Sanitation in the Mountains." Many privies are hopelessly bad and will have to be replaced. Pits which are nearly full should be filled with earth and the privy should be placed over a fresh pit.

10. Nuisances.

Almost anything which is injurious to health, or offensive to the senses of a considerable number of persons, is a public nuisance. For more complete legal definitions see the pamphlet on "General Health Laws," issued by the State Board of Health. Any one permitting a public nuisance to exist on his property, or on property which he leases, after reasonable notice in writing from a health officer or the district attorney, is guilty of a misdemeanor. It is the duty of the district attorney to prosecute such persons. Ordinarily a written notice is sufficient. The following form has been prepared for the use of inspectors of the State Board of Health:

NOTICE TO ABATE NUISANCE.

CALIFORNIA STATE BOARD OF HEALTH.

 You are hereby notified that a nuisance exists on property owned or controlled
 by you, located at -----

 caused by -----

 You are hereby ordered to abate said nuisance on or before -----
 -----, 191____, on penalty of arrest and prosecution
 as provided in the Penal Code of the State of California.

-----, Cal. -----
 -----, 191____. Title -----

Danger: Many kinds of nuisances are a danger to health. Horse manure and other rubbish breeds flies and may be responsible for the spread of typhoid fever and dysentery. Standing water breeds mosquitoes and is an essential factor in the spread of malaria. An insanitary privy on the bank of a stream may cause sickness in people who drink the water.

Correction: Report to the forest supervisor or county health officer. Inspectors of the board should proceed to bring about the abatement of the nuisance by giving instructions to the person responsible and serving a written notice on the form given above. Failure to abate the nuisance within the time specified should be reported to the State Board of Health by inspectors of the board, or direct to the district attorney by the county health officer.

11. Insanitary camps.

Most of the insanitary conditions already mentioned may exist in connection with a camp. In addition there may be crowding, poor ventilation, dirty bedding, insanitary kitchens, unhealthy employees in the kitchen, food badly kept, dirty eating utensils, common drinking cups, roller towels, little chance for bathing and a polluted water supply.

Danger: Diseases of various kinds.

Correction: Proceed against the various nuisances present as indicated in section 10. Report insanitary camps employing five or more men to the State Commission of Immigration and Housing, 525 Market street, or to the State Board of Health. An "Advisory Pamphlet on Camp Sanitation and Housing," can be obtained from the Commission. It contains specifications for a sanitary camp.

12. Rabid dogs and coyotes.

Dogs or coyotes acting queerly or attacking without provocation are often suffering from rabies.

Danger: Infecting man or domestic animals with rabies by biting.

Correction: Rabid animals should be killed if found in the wilds. If people have been bitten the wound should be cauterized at once with concentrated nitric acid or, in an emergency, with a hot iron, and they should then be sent away for the Pasteur treatment. If a dog has

bitten any one it should be captured and kept under observation. The heads of animals killed on account of suspected rabies should be packed in ice in a sealed metal pail and shipped by express to the Bureau of Communicable Diseases. A special bulletin on "Rabies" may be obtained from the State Board of Health. It contains directions regarding how to obtain the Pasteur treatment.

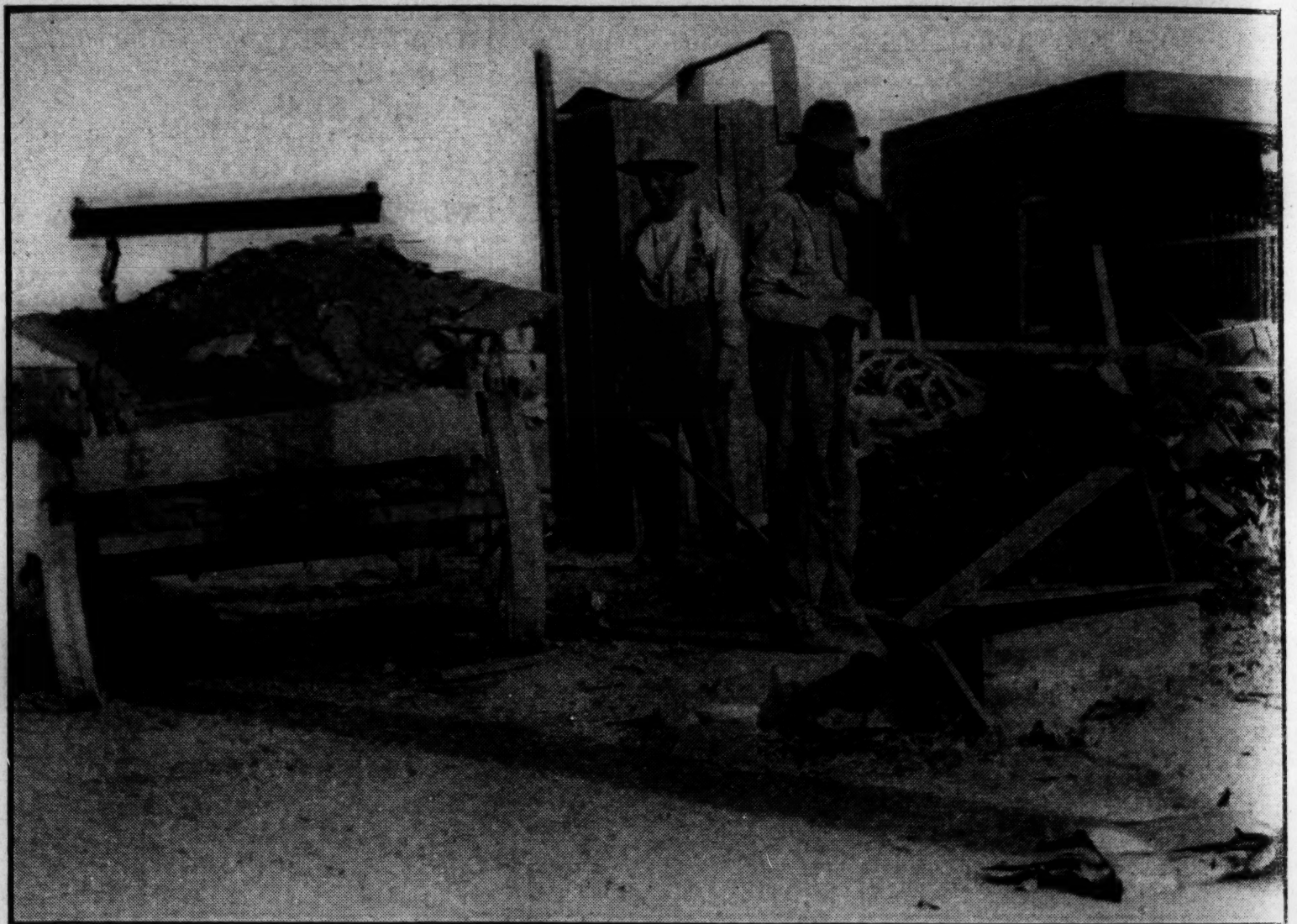
Special Bulletins of the State Board of Health.

| No. | Title | Date issued |
|-----|---|-------------------------------|
| 1 | Special Guaranties ----- | (Out of print.) |
| 2 | Poliomyelitis ----- | Oct. 15, 1912. |
| 3 | Rabies ----- | Nov. 1, 1913. |
| 4 | Cold Storage ----- | Dec. 26, 1913 (out of print). |
| 5 | Typhoid Fever ----- | June 1, 1914. |
| 6 | Diphtheria ----- | Aug. 1, 1914. |
| 7 | Administrative Machinery ----- | Oct. 10, 1914 (out of print). |
| 8 | Sewage Disposal for Isolated Residences ----- | Feb. 1, 1916. |
| 9 | Malaria (also Fly Control) ----- | March 1, 1916. |
| 10 | Sanitation in the Mountains ----- | May 1, 1916. |
| 11 | Tuberculosis ----- | May 1, 1916. |
| 12 | Hookworm ----- | May 1, 1916. |
| 13 | Production of Pure Milk ----- | July 1, 1916. |
| 14 | Rural Sanitation ----- | Aug. 1, 1916. |
| 15 | Poliomyelitis ----- | Aug. 1, 1916. |

A TYPHOID OUTBREAK AND A CLEAN-UP CAMPAIGN.

In a recent epidemic of typhoid fever in a California city, it was found that the source of infection was in a milk supply from a dairy in which a typhoid carrier was employed. The milk from this dairy is from tuberculin tested cows, but the supply is not pasteurized. A large number of cases, approximately one hundred, developed in the town and vicinity. It was found that many secondary infections had occurred.

An inspection of the town revealed the fact that many grossly insanitary conditions existed. As a result, the California State Board



The removal of hundreds of loads of rubbish was an important feature of a clean-up campaign in a California city where a hundred cases of typhoid fever developed.

of Health sent a sanitary inspector, as well as an epidemiologist, and a thorough clean-up campaign was conducted. A dozen local inspectors were appointed, the city was divided into districts and a regular military campaign was instituted. The amount of work involved in connection with this work may be understood when it is stated that in this town and vicinity no less than 4,000 nuisances were abated during a period of two weeks. Hundreds of inspections and reinspections were made; garbage cans were procured; yards and vacant lots were cleaned; old toilets demolished; old vaults filled; boarding houses screened; bunkhouses cleaned; chicken yards and stables cleaned; and dozens of teams were used in the removal of rubbish and debris. The inspectors met with the hearty and enthusiastic co-operation of the residents of the district.

During the past year the California State Board of Health has been called upon to handle similar situations in other parts of the state, according to the same method. Very often the visitation of a typhoid epidemic of this sort proves a blessing in disguise, for a thorough clean-up is of inestimable value in the prevention of communicable disease.



Milk, fresh from the cows, poured into an open tank, unprotected from flies, many of which were seen swimming in the milk. The abolishment of this method was but a single measure employed in the control of a typhoid epidemic in a California city.

This outbreak was undoubtedly due originally to an infected milk supply, followed closely by a large number of cases due to secondary infection. The situation was thus made very complex, necessitating prompt and vigorous action in the prevention of new infections. A thorough clean-up, the removal of all unsanitary conditions, is an absolute necessity under such circumstances and the people of a community who co-operate heartily in bringing about these improvements that mean so much to their future health and happiness are to be congratulated for their attitude. In this instance the California State Board of Health was aided greatly by the co-operation of the people of the communities concerned, and if sanitary conditions are maintained, a similar outbreak should not occur again.

CHLORINE TREATMENT OF WATER.

By RALPH HILSCHER, Assistant Engineer, Bureau of Sanitary Engineering.

Treatment of water supplies with chlorine to destroy harmful bacterial life has been a common practice of recognized merit for approximately ten years. This chemical was first used in the form of calcium hypochlorite, or common chloride of lime, the powder being dissolved in water and fed as a solution into the water supply. More recently the use of chlorine gas has come to be recognized as often having advantages over the hypochlorite treatment and has been rapidly supplanting the old method. Chlorine is obtainable compressed to liquid form in cast-iron cylinders, and there are on the market well-designed machines for accurately feeding the gas into a water supply.

Notwithstanding a rather general impression that hypochlorite treatment is coming to be more or less out of date, there are certain instances in which it is still preferable to liquid chlorine, and a brief discussion of the relative merits of the two appears to be in place at this time.

Comparisons of Hypochlorite and Liquid Chlorine Treatment.

Effectiveness. Treatment with either hypochlorite or liquid chlorine is highly effective in sterilizing water. In either case it is merely a question of introducing the requisite quantity of chemical and of introducing it continuously at a uniform rate.

Tastes. Where hypochlorite has been used, complaints of tastes in the water have been frequent, and on this account it is highly important that overdosing of the water be avoided. Difficulty in regulation of the hypochlorite solution feed between the critical limits of overdosing and underdosing constitutes one of its objectionable features. In the case of liquid chlorine, complaints due to taste are very rare, and overdosing is permissible, to a considerable degree, at least.

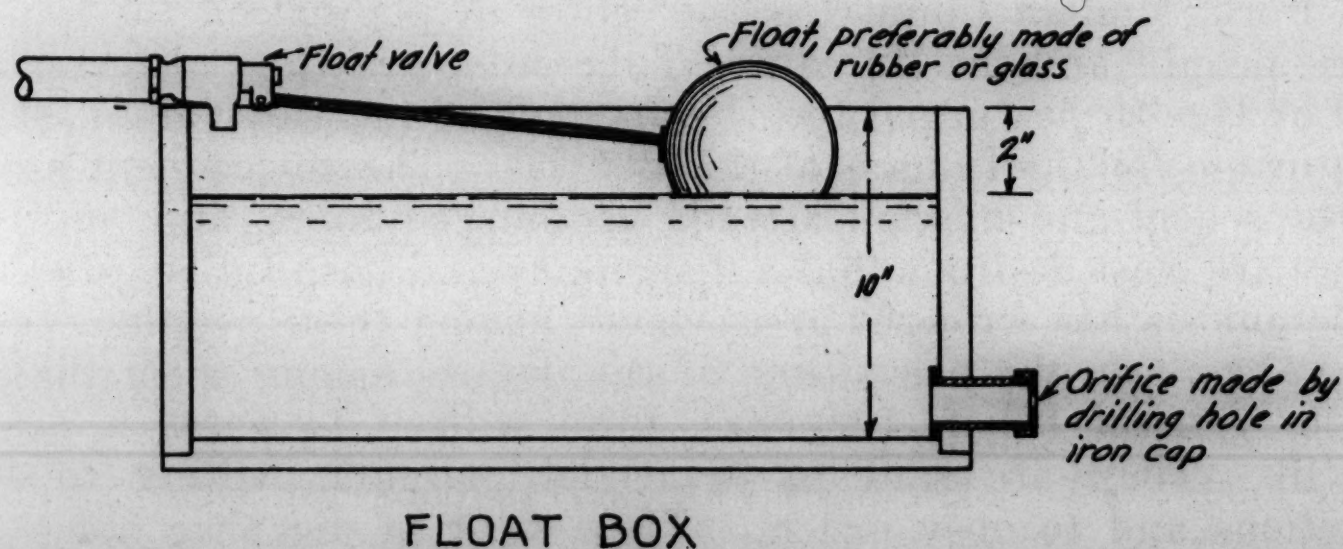
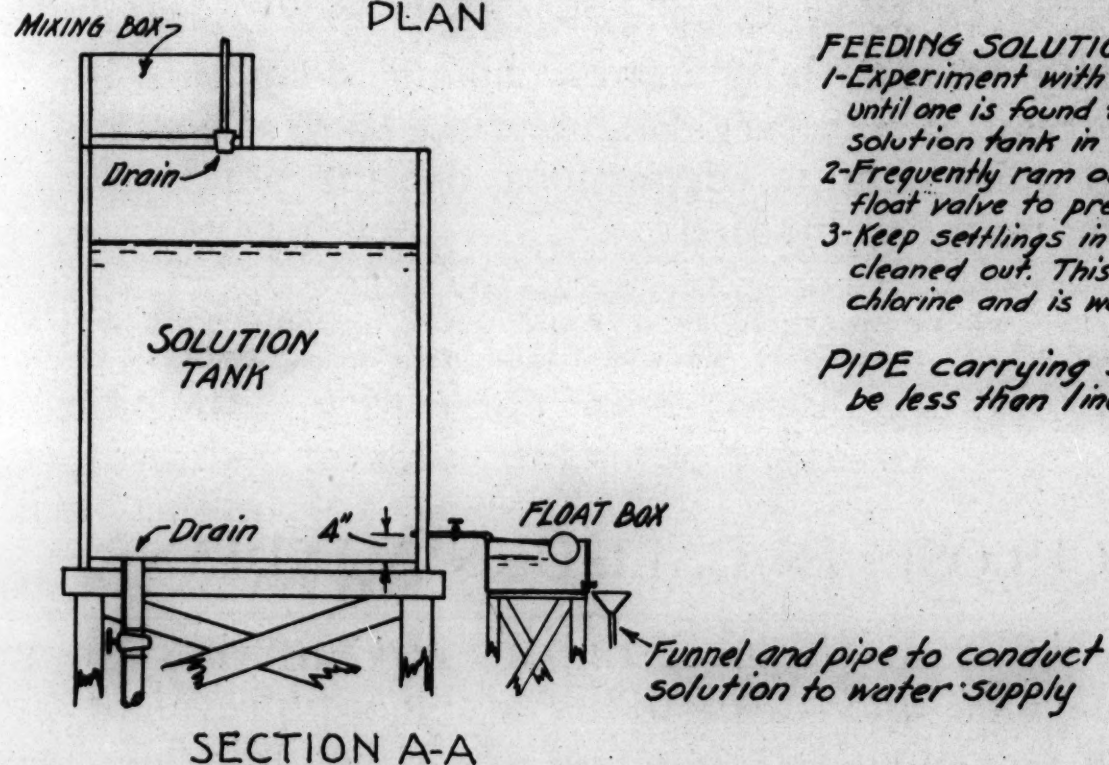
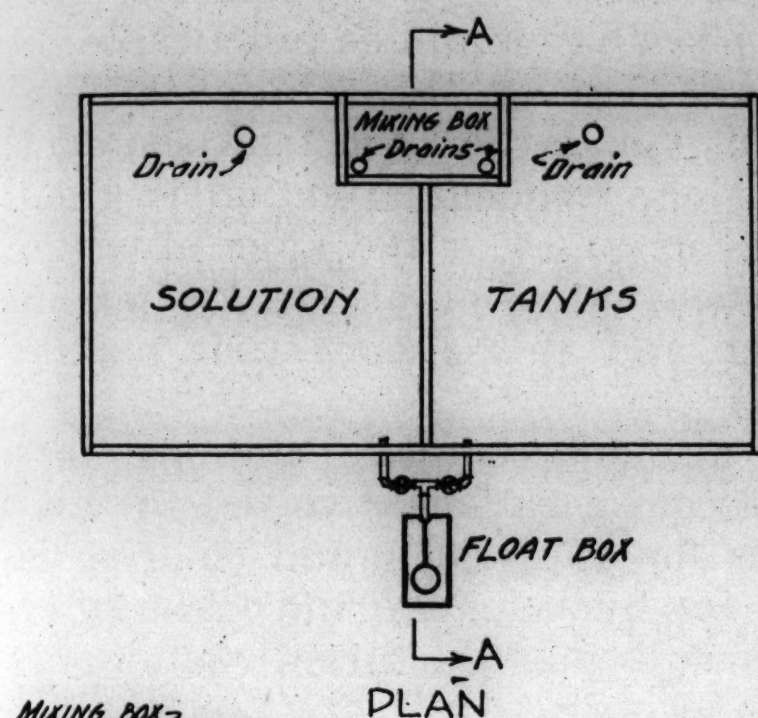
Convenience. Hypochlorite treatment has the disadvantage that the powder emits an extremely penetrating odor that irritates the nostrils and throats of men working with it. Aside from the inconvenience thus resulting to the men, this feature is apt to impair the efficiency of the treatment indirectly as a result of the men developing a natural tendency to avoid giving the treatment proper attention. With liquid chlorine the gas very rarely escapes into the open air.

Cost of Equipment. In point of first cost hypochlorite treatment has an advantage over liquid chlorine. A device for applying hypochlorite should not cost over one hundred dollars at the average waterworks plant supplying up to, say, 5,000 people. A liquid chlorine machine in California to serve the same purpose would cost probably not less than \$450.

Cost of Operation. The cost of chemical for either form of treatment is a small item and in either case is about the same, amounting at present to around forty cents per million gallons of water treated.

Emergency or Temporary Use. It sometimes happens that immediate disinfection is necessary, in which case a delay of possibly several weeks in ordering and awaiting shipment from the east of liquid chlorine apparatus is highly undesirable. A hypochlorite plant for such emergency use can usually be built of material at hand, and by its use this delay is avoided. (See footnote.) Also, in some cases only temporary or intermittent treatment is necessary, in which case the

extra financial outlay for liquid chlorine equipment is not warranted, and the disadvantages of hypochlorite treatment are overcome by the saving in cost.



CALIFORNIA
STATE BOARD OF HEALTH
BUREAU OF SANITARY ENGINEERING
APPARATUS FOR TREATING WATER
WITH CHLORIDE OF LIME

INSTRUCTIONS

SOLUTION TANKS—

Each to hold not less than 200 gallons.
May be any shape and built of either
wood or concrete.

TO MAKE SOLUTION—

- 1-Weigh out 5 lbs. chemical for each million gallons water supplied in 24 hours.
- 2-Place in mixing box and make into a paste by adding water and stirring until all lumps are broken.
- 3-Drain paste out into tank being charged. Fill with water and stir. Let settle at least one hour before using solution.
- 4-Never stir solution while using.

FEEDING SOLUTION—

- 1-Experiment with different sized orifices until one is found that will empty one solution tank in 24 hours.
- 2-Frequently ram out orifice and flush float valve to prevent clogging.
- 3-Keep settlings in tanks and float box cleaned out. This material contains no chlorine and is worthless.

PIPE carrying solution should not be less than 1 inch diameter.

General Remarks on Hypochlorite Treatment.

Except for brief or emergency treatment, chloride of lime purchased at a local store is not to be recommended for use, as this material usually is far below standard strength. If the treatment is to be continuous the chemical should be purchased from reliable chemical houses in sealed drums of ten pounds or more. Unused hypochlorite should be

kept dry and in a closed container in order to prevent the chlorine from escaping. A dose of five pounds of hypochlorite to each million gallons of water is usually sufficient to effect satisfactory bacterial removal and at the same time avoid tastes in the water, provided the chemical is of good quality.

In preparing the accompanying sketch of a hypochlorite plant it was assumed that attention only once a day would be practicable. Ordinarily the smallest orifice stream feeding the solution which will give good regulation is 200 gallons per day. Each tank should therefore hold at least this volume. More frequent attention is greatly to be desired, as clogging of orifices or pipes in the apparatus must be carefully guarded against. Frequent attention also makes possible recharging of the tanks more often and at the same time making the tanks proportionately smaller.

The few remarks made here are not complete and are intended merely to point out the principal considerations involved in this form of water purification. Apparatus for applying liquid chlorine is considerably more complicated than for hypochlorite and those interested in such equipment may best consult manufacturers' catalogues for enlightenment regarding design and operation.

Before proceeding to make any improvements along this line, it is urged that the Bureau of Sanitary Engineering be first communicated with in order that more definite suggestions, dealing particularly with local requirements, may be obtained.

NOTE—The California State Board of Health has obtained a small portable liquid chlorine machine for use where emergencies demand quick action. This will be sent out by express for use where conditions warrant, upon receipt of requests from local authorities.

TUBERCULOSIS IN CALIFORNIA INDIANS.

Nearly 30 per cent of all deaths of Indians in California are due to tuberculosis. Trachoma and tuberculosis are more prevalent among the people of this race than any other of the communicable diseases. North Fork, Madera County, is the center of population for hundreds of these people, and the Bureau of Tuberculosis of the California State Board of Health has urged the Department of the Interior to establish a sanatorium for the Indians of this district. The government has land near the school and mission already established there, and pupils and teachers are most desirous that a dispensary and hospital be established.

Tuberculosis has wrought great havoc among these people. In fact, so great has been the prevalence of the disease among them that, contrary to general belief, they are quite willing to enter a hospital when ill. They are said to be model patients, willing to follow instructions and to obey orders. They want to die near home, however, just as any of us do. Consequently, many an Indian has been transported from the county hospital, over many miles of rough mountain roads, to reach home before death might come. Many times they have died before arriving at their homes. The establishment of a government sanatorium and dispensary would provide a place near at home for treatment and care.

SANITATION OF SCHOOLS.

The State Board of Education has adopted rules and regulations for the government of the public schools of California, among which are a number of orders having much to do with the conservation of the health of school children. Such rules are printed herewith. Their enforcement may have a great deal to do with the health of our future citizens.

Principals and teachers shall supervise use of buildings.

SEC. 8. Principals and teachers shall prescribe such rules for the use of yards, basements, and outbuildings, connected with the schoolhouses, as shall insure their being kept in a neat and proper condition, and shall examine them as often as may be necessary for such purpose. School boards, superintendents, principals and teachers shall be held responsible for the sanitary, neat and cleanly condition of the school premises. (See Sec. 1546, Pol. Code.)

Schoolrooms must be ventilated.

SEC. 9. Principals and teachers shall give vigilant attention to the ventilation and temperature and lighting of their schoolrooms. At each recess the windows and doors shall be opened for the purpose of changing the atmosphere of the room.

Order of admission of pupils.

SEC. 10. Teachers shall enter in the school register, in the order of their application, the names of all those applying for admission to the school after the prescribed number of pupils, or the number that can be accommodated with seats, have been received. Such applicants shall be admitted to seats whenever vacancies occur, in the order of their registration.

Teachers may require excuse.

SEC. 11. Teachers are authorized to require excuses from the parents or guardians of pupils, either in person or by written note, in all cases of absence or tardiness, or of dismissal before the close of school; *provided*, that such excuses shall not be required until the following day.

Pupil responsible for care of property and for his conduct.

SEC. 13. Any pupil who shall in any way cut or otherwise injure any schoolhouse, or injure any fences, trees, or outbuildings belonging to any of the school property, or shall write any profane or obscene language, or make any obscene pictures or characters on the school premises, shall be liable to suspension, expulsion, or other punishment, according to the nature of the offense. The principal may suspend a pupil temporarily for such offense, and shall notify the school board of said action. All damages done to school property by any of the pupils shall be repaired at the expense of the party committing the offense.

Pupils must be neat and clean on entering school.

SEC. 14. All pupils who go to school without proper attention having been given to personal cleanliness, or neatness of dress, shall be sent home, to be properly prepared for school, or shall be required to

prepare themselves for the schoolroom before entering. Every school building shall be provided with sanitary equipment for personal cleanliness.

Pupils who have any contagious disease must be sent home.

SEC. 15. No pupils affected with any contagious disease shall be allowed to remain in any of the public schools.

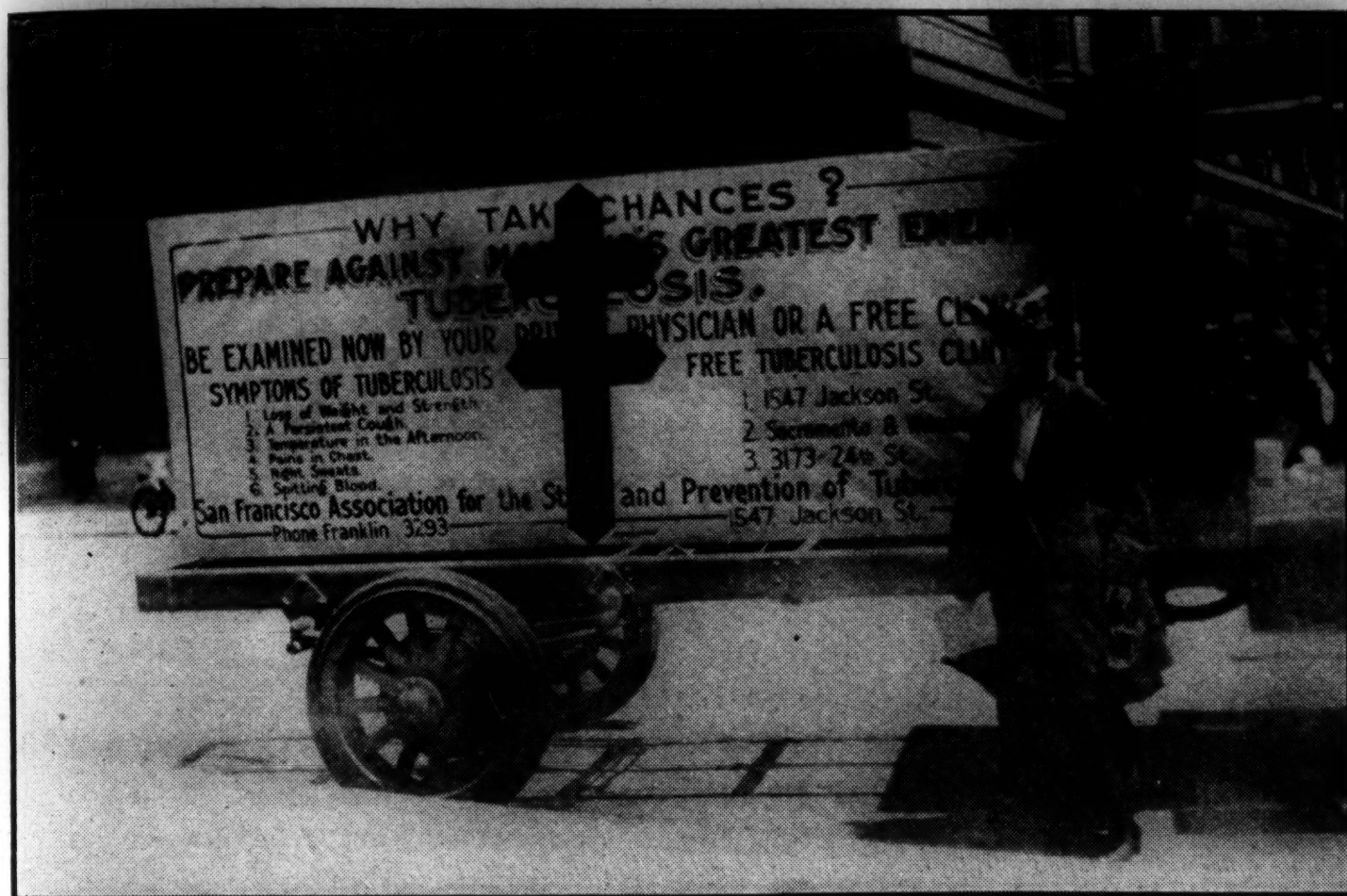
The studies and books used shall be those authorized by law.

SEC. 16. The books used and the studies pursued shall be such, and such only, as may be authorized and prescribed by the proper authorities; and no teacher shall require or advise any of the pupils to purchase for use in the schools any book not contained in the list of books directed and authorized to be used in the schools by the legally constituted authorities.

A janitor other than the teacher must be employed.

SEC. 18. Trustees are required to employ a suitable person other than the teacher to sweep and take care of the schoolhouse, and they shall make suitable provision for supplying the school with water. (See Sec. 1617, sub. 7b.) In case of the failure of the trustees to employ a janitor, as provided for in section one thousand six hundred and seventeen, subdivision seventh, of this code, the county superintendent shall appoint a janitor, who shall be paid out of the school fund of the district. (See Sec. 1543, sub. 12.)

PREPAREDNESS.



WHY TAKE CHANCES?

PREPARE AGAINST MANKIND'S GREATEST ENEMY—
TUBERCULOSIS.

The San Francisco Association for the Study and Prevention of Tuberculosis entered the float pictured above in the Preparedness Day parade, held in San Francisco, July 22d. The Association took advantage of this opportunity for making a strong appeal to the public at this time. In addition, visiting nurses, one of whom is pictured above, interviewed many men standing along the line of march, urging those whom she thought might be tuberculous, to have examinations made at the association's clinic.

REPORT OF PLAGUE SUPPRESSIVE MEASURES.

By C. C. PIERCE, Senior Surgeon, United States Public Health Service, in charge
Joint, Federal and State Plague Suppressive Measures.

During July, 1916, all hunting operations were stopped except in Merced, Madera, Kern and Mendocino counties. The number of squirrels shot during July was 1,660, among which no plague infected squirrels were found. Many squirrels from Kern County, however, were found to have the "plague-like" disease caused by the *B. tularense*. This disease has been observed to cause epidemics among squirrels and rabbits, but, so far as is known, is not communicable to man. Among squirrels shot in June, 13 were proven in the laboratory to have plague, so that the total number of plague infected squirrels for the hunting season this year is 96.

When hunting operations were discontinued the employees resumed inspection and eradication work and the serving of notices on land-owners in accordance with the law of June 7, 1913.

The following table shows the work accomplished during July:

| | |
|--|---------|
| Inspections and reinspections of lands made..... | 2,173 |
| Acres inspected and reinspected..... | 732,357 |
| Acres treated with poisoned grain..... | 79,400 |
| Acres treated with waste ball method..... | 1,413 |
| Number of squirrel burrows treated..... | 47,089 |

In many of the counties regular "poison days" have been arranged, where all the property owners and tenants of a certain district would get together and distribute poisoned grain over large areas at the same time. Much better results are secured when all those interested co-operate in this manner, and it is through such measures that the United States Public Health Service and State Board of Health employees accomplish the most in squirrel destruction.

Owing to the limited amount now available from state funds for the squirrel eradication campaign practically all the employees are being carried on the federal roll; travel, transportation and other incidental expenses being paid for from the state appropriation. It will be necessary to secure a large appropriation from the state legislature at its next session for the continuance of this work, so that the state may bear its just share of the expenditures for ground squirrel eradication.

As mentioned in last month's report, many of the bay cities are engaged in rat eradication work, so as to lessen the danger of plague infection being brought to city rats by ground squirrels. During the month of July, 1,282 rats from various cities were examined in the San Francisco laboratory; none were found to be plague-infected.

Several conferences were held with various boards of supervisors, relative to financial co-operation, but no additional funds were secured, although the boards in two counties promised further consideration at their September meetings.

The counties that have contributed most for this work have greatly reduced their ground squirrels, thus saving their residents the enormous loss caused by these pests; increasing land values, and removing a menace to the public health.

The prospects for intensive squirrel destructive work over large areas of land during the ensuing months are particularly favorable; and by co-operative and continued efforts, plague among ground squirrels will finally be eradicated.

REPORT OF THE MEETING OF THE STATE BOARD OF HEALTH AUGUST 5, 1916.

The regular monthly meeting of the State Board of Health was held at Sacramento on August 5, 1916. The following members were present: Doctors George E. Ebright, F. F. Gundrum, Edward F. Glaser, Robert A. Peers and Wilbur A. Sawyer.

Three appointments were made to fill vacancies on the regular staff. Nine inspectors were appointed to serve without pay from the state in controlling typhoid fever in the West Side oil fields of Kern County. These men are under salary from the county and cities involved. The temporary appointment of eight men as health inspectors for the purpose of excluding poliomyelitis cases and contacts by inspecting transcontinental trains was confirmed.

By the following resolution the State Board of Health changed its system of preventing the introduction of poliomyelitis into California, and adopted a method uniform with that in Oregon and Washington:

“Resolved, That the transcontinental railroads entering California be requested to co-operate with the State Board of Health by having their conductors and station agents notify local health officers, on cards furnished by the board, of the arrival of travelers from points in which poliomyelitis is epidemic, in uniformity with the procedure now in effect in Washington and Oregon; and be it further

Resolved, That the present system of border inspection by employees of the board be discontinued on August 25th, if the arrangement with the railroads has been consummated.”

Regulations for the prevention of poliomyelitis were amended and adopted by the board.

A petition was received from citizens of Modoc County asking the board to continue the quarantine against rabies. The following action was taken:

“Resolved, That the quarantine against rabies in Modoc and Lassen counties is necessary and shall be continued until six months after the last reported case.”

The failure of certain health officers to comply with the law by reporting cases of communicable diseases to the State Board of Health was discussed, and the following resolution was adopted:

“Whereas Dr. Harry O. Hund, health officer of Ross; Dr. J. C. Bainbridge, health officer of Santa Barbara County; Dr. W. E. Downing, health officer of Rio Vista and Dr. S. McL. Doherty, health officer of Napa County, have failed to file any reports regarding the presence or absence of communicable diseases during the months of April, May, June and July, 1916, in accordance with the law, although repeatedly warned; therefore be it

Resolved, That the local authorities be requested to remove them from office and to appoint efficient health officers in their places, and that the names of the delinquents be published in connection with the minutes of this meeting.”

On the recommendation of Mr. C. G. Gillespie, Director of the Bureau of Sanitary Engineering, the following permits were granted:

To the city of Santa Rosa, a temporary permit to supply water.

To the Visalia City Water Company, a permanent permit to supply water.

To the city of Kingsburg, a temporary permit to dispose of sewage on its sewer farm.

To the city of Kingsburg, a permanent permit to supply water.

To the city of Lompoc, a permanent permit to dispose of sewage into Santa Ynez River after clarification.

The use of sewage in irrigating green vegetables was forbidden in the following resolution:

“Resolved, That sewage or sewage-polluted water shall not be used for irrigating vegetables, berries, low-growing fruits, or green corn intended to be used for human consumption; be it further

Resolved, That sewage or sewage-polluted water may be used for irrigating vegetables or grains which are harvested in the dry state, such as beans, or vegetables, grains or alfalfa used exclusively as food for stock, with the exception that dairy cattle shall not be pastured on land under irrigation by sewage, or trees bearing fruits or nuts.”

The use of human excreta, or night-soil, in fertilizing or irrigating vegetables or fruits was forbidden by resolution.

It was ordered that the attention of local health officers be called to the fact that the discharge of sewage through wells into ground waters is in violation of the law, and that health officers be instructed to take such legal steps as may be necessary to cause the abatement of the practice.

The offer of the Chlorine Sterilization Equipment Company to loan to the State Board of Health a portable liquid chlorine machine for use in the emergency sterilization of public water supplies was accepted, and the thanks of the board were extended to the company.

Certificates as registered nurse were granted to 152 nurses who had passed the examination held by the Bureau of Registration of Nurses on June 13th and 14th, in Los Angeles, San Francisco and Sacramento. Out of 197 applicants the above number passed. One certificate was granted through reciprocity.

The Sierra Hospital at Sonora was accredited as a school for nurses for one year.

Hearings were then held in cases of alleged violations of the foods and drugs act and appropriate actions were taken.

REPORT OF THE BUREAU OF ADMINISTRATION FOR JULY, 1916.

WILBUR A. SAWYER, M.D., Director.

MORBIDITY REPORTS.

GUY P. JONES, Morbidity Clerk.

Poliomyelitis (Infantile Paralysis.)

Poliomyelitis was no worse in California during July than it generally is at this time of the year. There were but twelve cases reported. Five of these were in San Francisco, two in Los Angeles County, two in the city of Los Angeles, one in Imperial County, one in Alameda County, and one in Solano County.

Smallpox.

There was a small outbreak of smallpox in Perris, Riverside County, during July, twelve cases having been reported by the local health officer. All of these cases were in Mexicans who had recently come to Perris from Laredo, Texas, where there was an outbreak of smallpox among Mexican refugees. There were but four other cases of this disease during the month. Out of the sixteen cases reported, fourteen had never been successfully vaccinated, one had been vaccinated within seven years preceding attack, and for the remaining case no vaccination history was obtainable.

Typhoid Fever.

There were 132 cases of typhoid fever reported during July. Ten of these were in Kern County and eleven were reported from the city of Taft. The outbreak in the oil fields is apparently under control, however, as there has been a marked diminution in the number of cases. It is probable that the total number of cases recently developing in the oil fields will amount to 100. The other cases reported were well distributed over the state.

Meningitis.

Seven cases of epidemic cerebrospinal meningitis were reported. These occurred in Imperial, Los Angeles, Tehama and Los Angeles counties.

Malaria.

The reporting of malaria is very much more satisfactory than it has been. There were 114 cases reported during July. They were reported from twenty-two different counties of the state. Most of these reported, however, occurred in the Sacramento and San Joaquin valleys, where the disease is known to be endemic.

Typhus Fever.

Three cases of typhus fever were reported during the month. All of these were in Los Angeles. Two of these were in Mexicans, one of whom came to California from Arizona, the case in the other Mexican

being discovered in the rural districts of Los Angeles County. The third case was in a man who came into contact with one of the cases already mentioned.

Ophthalmia Neonatorum.

Eight cases of ophthalmia neonatorum were reported during July. This is more than have ever been reported during a single month.

Leprosy.

Three cases of leprosy occurred in July. One of these was in Los Angeles, one in San Francisco, and one in Tulare County.

Scarlet fever, measles, diphtheria, and other communicable diseases showed decreases over the preceding month.

SANITARY INSPECTIONS.

EDWARD T. ROSS, Sanitary Inspector.

The first week in July was spent in Modoc and Lassen counties in connection with the work being carried on for the extermination of rabies. Arrangements were made whereby each county will in future look after the enforcement of the quarantine regulations. The board of supervisors of Modoc County employed two inspectors for this purpose and the supervisors of Lassen County passed an ordinance making each supervisor responsible for the enforcement of the quarantine in his district and empowering him to employ an inspector for this purpose.

During the month three entire towns, several summer resorts, and a large number of miscellaneous premises were inspected. The last week of the month was spent in the town of Taft, assisting in the organization of the campaign against the spread of typhoid fever.

Summary of operations for the month:

| | |
|---------------------------------|----|
| Towns inspected..... | 3 |
| Summer camps..... | 5 |
| Canneries | 3 |
| Miscellaneous | 30 |
| Sanitary reports submitted..... | 11 |

The list of things which a child must finish during school years should not of necessity include measles, whooping-cough, mumps and chickenpox.—J. N. FORCE.

REPORT OF THE BUREAU OF COMMUNICABLE DISEASES FOR JULY, 1916.

JAMES G. CUMMING, M.D., DR. P. H., Director.

CONFERENCE OF THE WESTERN STATES AND BRITISH COLUMBIA RELATIVE TO CONTROLLING, IN THESE COMMUNITIES, THE SPREAD OF THE NEW YORK STRAIN OF ANTERIOR POLIOMYE- LITIS.

On July 15th, there met at Portland, health officials from Oregon, Washington, Montana, Idaho, California being represented by the assistant director of this bureau, a representative of the United States Public Health Service, and representatives from the various railroads of the northwest, and of numerous counties and cities. This meeting was called to consider protective measures against the entrance and spread into western communities of the New York strain of anterior poliomyelitis. As a result of the deliberations, the following resolutions were adopted, and copies sent to the various officials concerned:

1. That the Surgeon General of the United States Public Health Service be requested to notify the state health officer of each state and province represented here of any person leaving an infected area, destined for such state; giving the name of such person and the date of leaving the infected area.

2. That the various railway companies be requested to notify the state health officer of any person holding a ticket from an infected point. The details of such report to be arranged by the state health officer with the various railway officials.

3. That the various railway companies be requested to notify the state health office of any sick person on any train entering the state.

4. That sick persons shall be treated according to public health regulations of the state or province.

5. That suspected persons shall be kept under observation for twenty days.

INVESTIGATION OF SUSPECTED CASES OF ANTERIOR POLIOMYELITIS.

The case of H. B., age twelve years, of Vallejo.

Prodromal symptoms of about one week, during which time there was headache, temperature as high as 103° , pain in the back of the neck and in the shoulders, increased pain on motion. One week from the onset of illness there developed a complete paralysis of both legs and a suppression of urine. That there was partial involvement of the diaphragm was indicated by the difficulty in breathing when the patient sat up in bed. There was an absence of knee jerks in both legs, which were tender to pressure and to passive motion. As far as could be learned, this case appeared to be an endemic one.

The case of R. C., age eleven years, of Oakland.

No subjective symptoms. On examination, however, paralysis of the right side of the face and lachrymation of the right eye. Patient could not whistle and her smile was unilateral. So far as could be demonstrated, no other parts of the body were involved. The case is

now under provisional quarantine and will be kept under observation for further study. It is interesting to note that a member of the family is employed at the Custom House in San Francisco. Should the case prove to be one of anterior poliomyelitis, the possibility of its being the epidemic virus in contradistinction to the endemic virus should not be overlooked.

The case of X. Y., age thirty years, Contra Costa County.

For two months, the patient had severe pains in the lower part of the back. Later, the feet felt numb, as though "asleep." The legs had been weak for a couple of weeks. The patient was unable to walk without assistance, there being well-defined inco-ordination. On physical examination, the case proved to be tabes dorsalis.

The case of D. B. H., eleven months, Richmond.

Symptoms: The following symptoms were noted for the last three or four days: opisthous spasms, no paralysis, exaggerated reflexes. The spinal fluid from this case of suspected tubercular or epidemic spinal meningitis proved, on microscopical examination, negative for both diseases. The spinal fluid was clear, and microscopically only a few leucocytes and no tubercle bacilli were found. Animals have been inoculated to verify the negative diagnosis for tubercular meningitis. The case terminated fatally.

The case of R. B., age twenty-seven years, Oakland.

No subjective symptoms. Paralysis of the left arm with sensory involvement. Absence of knee jerks. Patient is under observation, but owing to the sensory involvement, the case is probably not one of anterior poliomyelitis.

TYPHOID EPIDEMIC AT MARICOPA AND TAFT DUE TO CONTAMINATED MILK SUPPLY.

On June 27th, this bureau, after having made an investigation of the typhoid epidemic in Maricopa and Taft, determined that the primary source of contamination was an ambulatory case of typhoid fever, in a man employed as a milker in a dairy which supplied milk to both towns. Specimens of stool were obtained from the four milkers employed in this dairy. Laboratory examination of these specimens demonstrated the typhoid bacillus in one. Before the diagnosis by laboratory examination of the stools, the bureau had requested, owing to the suspicious symptoms noticed in one of the milkers, that work by this man be dispensed with. The typhoid organisms have been isolated from two specimens out of four submitted weekly by this individual. The representative of this bureau, in company with Sanitary Inspector Ross, and with the assistance of nine deputized inspectors, are carrying on a clean-up campaign, and making further studies of the epidemic.

Division of Biological Examinations.

Summary of Examinations made in the California State Hygienic Laboratory
during the month of July, 1916.

| Condition suspected | Positive | Negative | Inconclusive | Total |
|--|----------|----------|--------------|-------|
| Main Laboratory at Berkeley: | | | | |
| Anthrax ----- | 3 | 2 | | 5 |
| Diphtheria (diagnosis) ----- | 22 | 38 | 6 | 66 |
| Diphtheria (release) ----- | 85 | 85 | 4 | 174 |
| Gonococcus infection ----- | 2 | 3 | | 5 |
| Hookworm ----- | 46 | 161 | | 207 |
| Malaria ----- | | 4 | 1 | 5 |
| Rabies ----- | 3 | 22 | | 25 |
| Syphilis (Wassermann test) ----- | 12 | 133 | 2 | 147 |
| Tuberculosis (sputum examinations) ----- | 10 | 16 | | 26 |
| Typhoid (Widal test) ----- | 32 | 34 | 17 | 83 |
| Typhoid (excreta) ----- | | 6 | | 6 |
| Miscellaneous ----- | 2 | 1 | 1 | 4 |
| | | | | 753 |
| Northern Branch at Sacramento: | | | | |
| Diphtheria (diagnosis) ----- | 1 | 20 | | 21 |
| Diphtheria (release) ----- | 3 | 7 | | 10 |
| Malaria ----- | | 5 | | 5 |
| Tuberculosis (sputum examinations) ----- | 3 | 8 | | 11 |
| Typhoid (Widal test) ----- | 7 | 20 | 1 | 28 |
| | | | | 75 |
| San Joaquin Valley Branch at Fresno: | | | | |
| Diphtheria (diagnosis) ----- | 5 | 29 | | 34 |
| Diphtheria (release) ----- | 1 | 14 | | 15 |
| Malaria ----- | | 3 | | 3 |
| Tuberculosis (sputum examinations) ----- | 3 | 7 | | 10 |
| Typhoid (Widal test) ----- | | 21 | | 21 |
| | | | | 83 |
| Southern Branch at Los Angeles: | | | | |
| Diphtheria (diagnosis) ----- | 11 | 35 | 1 | 47 |
| Diphtheria (release) ----- | 11 | 9 | | 20 |
| Malaria ----- | | 1 | | 1 |
| Tuberculosis (sputum examinations) ----- | 7 | 14 | | 21 |
| Typhoid (Widal test) ----- | 2 | 30 | | 32 |
| | | | | 121 |
| Total number of examinations ----- | | | | 1,032 |

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory during the month of July, 1916.

| | Treatment commenced | Treatment completed |
|--|---------------------|---------------------|
| Main Laboratory at Berkeley..... | 0 | 1 |
| Northern Branch at Sacramento..... | 0 | 0 |
| San Joaquin Valley Branch at Fresno..... | 0 | 0 |
| Southern Branch at Los Angeles..... | 0 | 0 |
| Laboratory of Sacramento Board of Health, by deputized bacteriologist | 0 | 0 |
| Laboratory of San Francisco Board of Health, by deputized bacteriologist | 0 | 0 |
| Laboratory of Los Angeles Board of Health, by deputized bacteriologist | 1 | 0 |
| Laboratory of San Diego City Board of Health, by deputized bacteriologist | 2 | 0 |
| Laboratory of Letterman General Hospital, by deputized bacteriologist | 0 | 0 |
| Laboratory of United States Naval Hospital, Mare Island, by deputized bacteriologist | 0 | 0 |
| Totals | 3 | 1 |

Distribution of Laboratory Products.

Vaccine for the Prevention of Typhoid Fever issued by the State Hygienic Laboratory during the month of July, 1916.

Number of physicians to whom vaccine was sent..... 31
 Number of complete treatments sent..... 1,243

Ophthalmia neonatorum prophylactic outfits distributed during the month of July, 1916.

Number of outfits, containing two ampoules each, issued..... 292

Public Health Instruction.

Participation in Instruction in Public Health during July, 1916.

Main Laboratory at Berkeley:
 Bacteriological instruction outfits sent out..... 0
 Bacteriological instruction outfits in use..... 22

Division of Epidemiological Investigations.

Epidemiological Investigations and other Special Investigations during July, 1916.

Special investigations by the Director..... 5
 Main Laboratory at Berkeley:
 An investigation of a case of anterior poliomyelitis at Vallejo, California.
 An investigation of a case of anterior poliomyelitis at Oakland, California.
 An investigation of a suspected case of anterior poliomyelitis at Santa Rosa, California.
 An investigation of a suspected case of anterior poliomyelitis at Oakland, California.
 Continuation of an investigation of hookworm in the gold mines of California.
 Special investigations by the Assistant Director..... 1
 An investigation of a suspected case of anterior poliomyelitis at Richmond, California.
 Special investigations by the Assistant Epidemiologist..... 2
 An investigation of a suspected case of anterior poliomyelitis at Antioch, California.
 An investigation of a typhoid fever epidemic at Maricopa and Taft.

REPORT OF THE BUREAU OF VITAL STATISTICS.

GEORGE D. LESLIE, Director.

BIRTHS IN CITY AND COUNTRY DISTRICTS.

EDNA A. MORTON, Deputy Statistician.

The tendency of our modern population to congregate in cities and towns affects more than the economic world with its problem of finding a sufficient number of willing producers and harvesters of our food supply; it also affects the social world. It is a significant fact that the prevailing city family is small. The old fashioned family of eight or ten children, so common among our forefathers, seems quite out of style today.

Special tabulations for California in 1915, of births, according to the number of children born to each mother, indicate that there were relatively more mothers with only one or two children in cities than in country districts. On the other hand, the proportion of births which were the third or over for each mother is less in every instance for cities than for country districts.

The detailed figures appear in the following table:

Births Classified by Number of Children Born to Mother, with Per Cents, for Cities and Rest of State, 1915.

| Order of birth | Births: 1915 | | | Per cent | | |
|----------------------|--------------|---------------------------------|---------------|------------|---------------------------------|---------------|
| | California | 34 free-holders' charter cities | Rest of state | California | 34 free-holders' charter cities | Rest of state |
| Totals ----- | 48,075 | 28,569 | 19,506 | 100.0 | 100.0 | 100.0 |
| First born ----- | 17,360 | 11,278 | 6,082 | 36.1 | 39.5 | 31.2 |
| Second born ----- | 11,718 | 7,139 | 4,579 | 24.4 | 25.0 | 23.5 |
| Third born ----- | 6,741 | 3,774 | 2,967 | 14.0 | 13.2 | 15.2 |
| Fourth born ----- | 4,153 | 2,221 | 1,932 | 8.6 | 7.8 | 9.9 |
| Fifth born ----- | 2,510 | 1,218 | 1,292 | 5.2 | 4.3 | 6.6 |
| Sixth born ----- | 1,533 | 754 | 779 | 3.2 | 2.6 | 4.0 |
| Seventh born ----- | 1,015 | 520 | 495 | 2.1 | 1.8 | 2.5 |
| Eighth born ----- | 642 | 312 | 330 | 1.3 | 1.1 | 1.7 |
| Ninth born ----- | 414 | 205 | 209 | 0.9 | 0.7 | 1.1 |
| Tenth and over ----- | 621 | 293 | 328 | 1.3 | 1.0 | 1.7 |
| Unknown ----- | 1,368 | 855 | 513 | 2.9 | 3.0 | 2.6 |

The table shows that the per cent of first born children was 39.5 for the 34 chartered cities, in contrast with only 31.5 for all the rest of the state, and that the per cent of second born children was 25.0 for these cities, against only 23.5 for the outside territory. Hence, for children which were only the first or second born to each mother the per cents totaled 64.5 for cities, in contrast with only 54.7 for country districts. For children who were the third or over born to each mother, however, the per cents for cities totaled merely 32.5, but for country districts were not less than 42.7.

Although the birth total was much greater in 1915 for chartered cities than for country districts, 28,569 against 19,506, yet the number was actually less within cities than outside them for births which were the fifth born (only 1,218 for cities, against 1,292 for country districts),

sixth born (754 against 779), eighth born (312 against 330), ninth born (205 against 209), and tenth or over (293 against 328).

For births which were the fifth or over for each mother the total was only 3,302, or merely 11.5 per cent of all, in cities, as compared with 3,433, or 17.6 per cent of all, in country districts.

Births, Deaths and Marriages for June.*

State Totals and Annual Rates.—The following table shows for California as a whole, the birth, death and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,946,347 for California in 1916, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population, for Current and Preceding Months, for California: June.

| Month | Monthly total | | Annual rate per 1,000 population 1916 |
|-----------------|---------------|-------|--|
| | 1916 | 1915 | |
| June— | | | |
| Births ----- | 4,137 | 3,770 | 17.1 |
| Deaths ----- | 3,082 | 3,022 | 12.8 |
| Marriages ----- | 3,424 | 3,359 | 14.2 |
| May— | | | |
| Births ----- | 4,003 | 3,686 | 16.0 |
| Deaths ----- | 3,234 | 3,238 | 13.0 |
| Marriages ----- | 2,321 | 2,195 | 9.0 |

*NOTE.—The present report is for the month preceding, but one. This order must be followed, because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the preceding month is completed.

The birth total for June showed a decided increase in 1916 over 1915. A small increase is also shown in both the marriage and death totals.

The totals reported under the registration system established in 1905 for June weddings have been as follows: 1916, 3,424; 1915, 3,359; 1914, 3,485; 1913, 3,371; 1912, 3,079; 1911, 2,976; 1910, 2,636; 1909, 2,511; 1908, 2,251; 1907, 2,366; and 1906, 2,342.

The birth registration for June exceeded the death total by 1,055, or 34.2 per cent.

Length of Residence. The length of residence in California for the 3,082 decedents in June was as follows: Under 1 year, 117, or 3.8 per cent; 1 to 9 years, 583, or 18.9 per cent; 10 years and over, 1,298, or 42.1 per cent; life, 812, or 26.4 per cent; and unknown, 272, or 8.8 per cent.

County Marriage Totals. The counties showing the highest marriage totals for the month were as follows: Los Angeles, 813; San Francisco, 659; Alameda, 285; San Diego, 160; Orange, 150; Sacramento, 107; Fresno, 106; San Joaquin, 99; San Bernardino, 91; Santa Clara, 86; Sonoma, 62; and Marin, 51. The aggregate for San Francisco and other bay counties was 1,055 against 963 for Los Angeles and Orange counties together.

County Birth and Death Totals. Exclusive of stillbirths in both cases, the birth and death totals for the month were as follows for the leading counties, arranged in decreasing order of birth registration:

| County | Births | Deaths | County | Births | Deaths |
|----------------------|--------|--------|---------------------|--------|--------|
| Los Angeles ----- | 954 | 787 | San Joaquin ----- | 85 | 79 |
| San Francisco ----- | 647 | 534 | Orange ----- | 84 | 54 |
| Alameda ----- | 391 | 263 | Contra Costa ----- | 80 | 35 |
| Fresno ----- | 160 | 85 | Santa Barbara ----- | 72 | 50 |
| San Diego ----- | 150 | 108 | Riverside ----- | 58 | 40 |
| San Bernardino ----- | 149 | 114 | Sonoma ----- | 58 | 51 |
| Santa Clara ----- | 127 | 92 | Stanislaus ----- | 55 | 29 |
| Tulare ----- | 107 | 39 | Kern ----- | 50 | 50 |

City Birth and Death Totals. Birth and death totals, exclusive of stillbirths, are presented similarly for the principal California cities below:

| City | Births | Deaths | City | Births | Deaths |
|---------------------|--------|--------|----------------------|--------|--------|
| San Francisco ----- | 647 | 534 | Pasadena ----- | 57 | 36 |
| Los Angeles ----- | 551 | 503 | Stockton ----- | 55 | 42 |
| Oakland ----- | 251 | 155 | San Bernardino ----- | 41 | 19 |
| San Diego ----- | 110 | 80 | Long Beach ----- | 36 | 38 |
| Sacramento ----- | 93 | 69 | Alameda ----- | 35 | 22 |
| Fresno ----- | 65 | 32 | Santa Barbara ----- | 35 | 27 |
| Berkeley ----- | 62 | 27 | Richmond ----- | 26 | 3 |
| San Jose ----- | 59 | 33 | Santa Monica ----- | 26 | 19 |

Geographic Divisions (Infant Mortality). The following table presents data for geographic divisions to show in comparison with total births and deaths the number of deaths under 1 year as some indication of conditions with reference to infant mortality in different portions of the State.

Total Births and Deaths, with Deaths Under One Year, for Geographic Divisions: June.

| Geographic division | Total live births | Total deaths, all ages | Deaths under 1 year |
|----------------------------------|-------------------|------------------------|---------------------|
| The State ----- | 4,137 | 3,082 | 304 |
| Northern California— | | | |
| Coast counties ----- | 168 | 162 | 10 |
| Interior counties ----- | 239 | 139 | 12 |
| Central California— | | | |
| San Francisco ----- | 647 | 534 | 34 |
| Alameda County ----- | 391 | 263 | 22 |
| Other bay counties ----- | 127 | 95 | 11 |
| Coast counties ----- | 250 | 166 | 15 |
| Interior counties ----- | 777 | 504 | 72 |
| Southern California— | | | |
| Los Angeles city ----- | 551 | 503 | 43 |
| Rest of Los Angeles County ----- | 403 | 284 | 23 |
| Other counties ----- | 584 | 432 | 62 |

Cause of Death. The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Current and Preceding Month, for California: June.

| Cause of death | Deaths, June | Proportion per 1,000 | |
|--|-----------------|----------------------|---------|
| | | June | May |
| All causes ----- | 3,082 | 1,000.0 | 1,000.0 |
| Typhoid fever ----- | 21 | 6.8 | 5.0 |
| Malarial fever ----- | 5 | 1.6 | 0.9 |
| Measles ----- | 6 | 1.9 | .09 |
| Scarlet fever ----- | 3 | 1.0 | 0.9 |
| Whooping-cough ----- | 28 | 9.1 | 9.6 |
| Diphtheria and croup ----- | 27 | 8.8 | 10.2 |
| Influenza ----- | 8 | 2.6 | 2.2 |
| Other epidemic diseases ----- | 19 | 6.2 | 3.7 |
| Tuberculosis of lungs ----- | 346 | 112.3 | 117.5 |
| Tuberculosis of other organs ----- | 60 | 19.5 | 21.6 |
| Cancer ----- | 215 | 69.8 | 72.0 |
| Other general diseases ----- | 136 | 44.1 | 41.1 |
| Meningitis ----- | 18 | 5.8 | 6.8 |
| Other diseases of nervous system ----- | 207 | 67.2 | 60.9 |
| Diseases of circulatory system ----- | 588 | 190.8 | 196.3 |
| Pneumonia and broncho-pneumonia ----- | 181 | 58.7 | 69.3 |
| Other diseases of respiratory system ----- | 53 | 17.2 | 17.6 |
| Diarrhea and enteritis, under 2 years ----- | 73 | 23.7 | 22.3 |
| Diarrhea and enteritis, 2 years and over ----- | 32 | 10.4 | 12.7 |
| Other diseases of digestive system ----- | 180 | 58.4 | 51.9 |
| Bright's disease and nephritis ----- | 231 | 74.9 | 69.6 |
| Childbirth ----- | 24 | 7.8 | 12.4 |
| Diseases of early infancy ----- | 123 | 39.9 | 39.9 |
| Suicide ----- | 66 | 21.4 | 29.1 |
| Other violence ----- | 287 | 93.1 | 79.2 |
| All other causes ----- | 145 | 47.0 | 46.4 |

In June there were 588 deaths, or 19.1 per cent of all, from diseases of the circulatory system, and 406, or 13.2 per cent, from the various forms of tuberculosis, heart disease thus being far in advance of tuberculosis.

Other notable causes of death for the month were: Violence, 353; diseases of the digestive system, 285; diseases of the respiratory system (pneumonia, etc.), 234; Bright's disease and nephritis, 231; diseases of the nervous system, 225; cancer, 215; and epidemic diseases, 117.

The deaths from epidemic diseases were as follows: Whooping-cough, 28; diphtheria, 27; typhoid fever, 21; influenza, 8, and all other epidemic diseases, 33.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

| Whooping-cough | | Diphtheria | | Typhoid fever | |
|----------------|----|---------------|----|----------------|----|
| Kern | 1 | Alameda | 2 | Alameda | 2 |
| Los Angeles | 14 | Amador | 1 | Fresno | 4 |
| Nevada | 1 | Calaveras | 1 | Imperial | 2 |
| Orange | 2 | Contra Costa | 2 | Kern | 3 |
| Riverside | 2 | Los Angeles | 1 | Los Angeles | 3 |
| San Diego | 1 | Monterey | 1 | Napa | 1 |
| San Francisco | 2 | San Diego | 1 | San Bernardino | 1 |
| Santa Barbara | 3 | San Francisco | 11 | San Diego | 1 |
| Sonoma | 1 | San Joaquin | 2 | San Francisco | 1 |
| Tulare | 1 | San Mateo | 1 | Santa Barbara | 1 |
| | | Santa Barbara | 1 | Santa Clara | 1 |
| Total | 28 | Santa Cruz | 1 | Shasta | 1 |
| | | Tulare | 2 | | |
| | | Total | 27 | Total | 21 |

Sex, Race and Nativity. The proportion of the sexes among the 3,082 decedents in June was: Male, 1,829, or 59.3 per cent; and female, 1,253, or 40.7 per cent.

The race distribution of decedents was: White, 2,888, or 93.7 per cent of all; Japanese, 66; Chinese, 62; negro, 54; and Indian, 12.

The 2,888 white decedents were classified by nativity as follows: California, 747, or 25.9 per cent; other states, 1,164, or 40.3 per cent; foreign countries, 879, or 30.4 per cent; and unknown, 98, or 3.4 per cent.

Age Periods. The 3,082 deaths reported for the month were distributed by age periods as follows: Under 1 year, 304, or 9.9 per cent; 1 to 4 years, 143, or 4.6 per cent; 5 to 9 years, 50, or 1.6 per cent; 10 to 19 years, 102, or 3.3 per cent; 20 to 29 years, 264, or 8.6 per cent; 30 to 39 years, 294, or 9.5 per cent; 40 to 49 years, 345, or 11.2 per cent; 50 to 59 years, 406, or 13.2 per cent; 60 to 69 years, 462, or 15.0 per cent; and 70 years and over, 712, or 23.1 per cent.

The 304 deaths under 1 year, in comparison with the 4,137 live births reported for the month, represent an infant mortality ratio of 73 per 1,000 births.

REPORT OF THE BUREAU OF TUBERCULOSIS FOR JULY, 1916.

E. L. M. TATE, Director.

One might expect July, with its heat and vacation, to affect, in a measure, the activities of the bureau, but this has been its busiest month. So great has been the demand for the little book, "What You Should Know About Tuberculosis" that already ten thousand copies have been distributed and more requests are coming in.

The new antispitting cards, some printed in Spanish, Italian and Armenian, are ready for distribution. By the middle of September a new primer for school children will be ready.

More than 30,000 pieces of literature have been distributed in the past two months. It is gratifying to know that people are interested.

Early in the month, accompanied by the attorney for the State Board of Health, Mr. Campbell, and two of the State Board of Charities staff, we visited San Bernardino—that relic, passing for a hospital for the sick and aged poor of the county. The second visit to the tuberculosis sheds showed some improvement. The bedding had been burned and a promise was made to make that part of the hospital more habitable. But the whole place was a sorry sight.

The latter part of the month was spent at Berkeley. A series of lectures on the various aspects of the tuberculosis problem was given at the summer session of the University of California.

Colfax and its various hospitals were visited. As a proof that not all patients are lazily inclined, we will exhibit the work of the patients of the School for the Tuberculous at the State Fair. A meeting was held with the Nevada County Extension Club at Nevada City the last of the month.

HOSPITALS INSPECTED.

Los Angeles
Sacramento
San Diego
San Bernardino
San Francisco

Nevada
Dr. Peers' Hospital at Colfax
The Pines, Colfax
Graystone Lodge, Colfax
The School for the Tuberculous, Colfax

REPORT OF THE BUREAU OF SANITARY ENGINEERING FOR JULY, 1916.

C. G. GILLESPIE, C.E., Director.

The main work for the month relates to a general inspection of the water supplies and sewage disposal of San Joaquin Valley towns from Modesto to Bakersfield, much time being devoted to conditions in the vicinity of Fresno, where the rapid development of the fruit and vineyard industry has produced a great many difficult sanitary problems. The county is fortunate in having a full-time sanitary inspector who is particularly active in the enforcement of sanitary regulations.

In general, it may be said of the valley towns that their water supplies, being derived almost without exception from deep wells, are safe and of excellent quality, whereas their sewage disposal is in most cases exceedingly deficient, both in design of works and in the operation and attention to sanitary disposition of the sewage. The town of Exeter alone is accomplishing results which can be commended, largely through good fortune in employing a man vitally interested in his work and successfully striving to get the best out of the design. Every one of the eleven septic tanks examined was delivering a poorly clarified effluent, indicating that the tanks were full or nearly filled with sewage deposits. With the exception of the Hanford Imhoff tank, all the Imhoff tanks were giving excellent clarification in spite of the lack of operating attention and consequent foul appearance. Most of the farms were poorly managed, weed-grown and "sewage sick," due to the continuous flow of sewage onto restricted areas without proper soil resting.

SEWAGE DISPOSAL.

Applications for Permits Filed.

Lompoc—To discharge effluent of proposed Imhoff tank, together with drainage water from Roberts Slough, into Santa Ynez River.

King City—To discharge effluent from proposed Imhoff tank by broad irrigation onto land adjacent to Salinas River.

Palo Alto, Hospital and School for Convalescent Children—To dispose of Imhoff tank effluent by subsurface irrigation along the bank of a watercourse tributary to Los Trancos Creek.

Kingsburg—To continue to dispose of sewage effluent by broad irrigation onto city sewer farm.

Permits Granted.

Kingsburg—Temporary permit to continue the use of the present system of sewage disposal on the condition that the sewer farm be operated to the best possible advantage to avoid nuisance.

Lompoc—Permit to discharge effluent of proposed Imhoff tank into Santa Ynez River.

Plans Filed.

Palo Alto, Hospital and School for Convalescent Children—Imhoff tank and subsurface irrigation system.

Lompoc—Plans for Imhoff tank.

Investigations, Inspections and Reports.

Modesto—The septic tank needs cleaning badly in spite of the fact that it was cleaned in April of this year. No trouble has been encountered in inducing seepage onto a 100-acre sewer farm planted to alfalfa. During the very wet weather sewage is disposed of into a slough along the Tuolumne River.

Turlock—Sewage is clarified in a septic tank, following which it is disposed of by irrigation onto about 10 acres of coarse sandy soil. The tank is extremely foul and the effluent poorly clarified. Weeds are growing prolifically about the farm. No nuisance, however, is said to be complained of.

Merced Falls—Sewage of Merced Falls is disposed of into the Merced River directly, after clarification in a septic tank. The Board has served informal notice that the practice must stop and has suggested the use of large existing cesspools as an alternative means of disposal of the septic tank effluent, which will meet its approval.

Madera—Nuisance due to the ponding of crude sewage on a private farm about a half mile from the nearest residence has made it incumbent on the city to make improvements. In view of the serious need for other civic improvements and the probable temporary nature of the expedient of disposal by irrigation in this the only vicinity open to the city for the purpose, consideration of an earth basin to act as a septic or clarification tank has been suggested, following which the effluent will be disposed of by broad irrigation on alfalfa and pasture land, except during the winter when it may be run into a large natural canal.

Friant—The Grant Rock and Gravel Company, with works close to the San Joaquin River, are installing toilets, disposing of the effluent in a large cesspool in the sandy soil along the river bank.

Clovis—The septic tank at Clovis is an unusual radial design. At the time of inspection the effluent was free of colloidal matter but contained chunks of undigested sludge. The effluent is disposed of by furrow irrigation and apparently without nuisance.

Fowler—The Imhoff tank is producing good clarification. Considerable mosquito development, however, was taking place in the tanks. The use of oil has been suggested, making use of additional baffles or curtain walls to prevent the escape of the oil with the clarified effluent. The sewage is being disposed of by broad irrigation on an alfalfa field, apparently without offense.

Selma—The sewage is treated in a septic tank which needs cleaning badly. The effluent is disposed of onto a 160-acre alfalfa ranch, both winter and summer.

Kingsburg—The sewage is clarified in a septic tank, following which it is disposed of by broad irrigation onto a 9½-acre city sewer farm planted to alfalfa. The soil is dense silt and the acreage so small that considerable difficulty is encountered in inducing seepage.

Dinuba—Sewage is clarified in a radial flow tank, similar to the design at Clovis. On the date of inspection clarification was very imperfect. The tank is a three-unit construction, only one of which has heretofore been used. It is recommended that the tank in use be thrown out of service and a clean one used. The resting of the former tank will tend to hydrolize the leathery mat on the surface, making

removal of the sludge contents with a pump easier of accomplishment a few months hence.

Reedley—The city has recently started construction on a modern sprinkling filter and appurtenances, as suggested by the bureau. The Imhoff tank is clarifying well in spite of scanty operating attention.

Visalia—This city ponds its sewage, disposing of the effluent onto a large tract of corn land privately owned, about 1,000 acres in extent. It is doubtful if any nuisance ensues.

Lindsay—Sewage is clarified in a septic tank after which it runs to waste on a weed-grown farm adjoining the city garbage dump. Mosquitoes were breeding in the ditches prolifically and the whole appearance of things about the farm emphasizes the need of improvement. Nuisance is complained of a mile away.

Porterville—The sewage is passed through an open septic tank, in the scum of which flies breed prolifically and may easily convey disease from the tank to a nearby country road or to residents in the vicinity. The effluent has been applied without even ordinary precautions to an alfalfa tract on the city sewer farm, which has become "sewage sick." Cleaning of the tank, roofing over the top and addition of larger areas which may receive sewage, applied by furrow or broad irrigation method with proper intermittency, has been recommended.

Bakersfield—The sewage of the city proper is disposed of onto a rice farm operated by a Chinaman, following haphazard clarification in an open circular tank. The farm is about three miles from the city, in the open country, and apparently nuisance is not a factor. There is also a private system of sewers serving a portion of the city, discharging the sewage onto a farm just outside the city limits. It appears that some green vegetables are grown on the farm, a practice which it will be necessary to discontinue on account of the easy travel of sewage pollution and disease through the media of vegetables.

Tulare—The septic tank is in serious need of cleaning. The effluent is disposed of onto a city sewer farm planted to corn, now operated by a tenant.

Hanford—The sewage is clarified in an Imhoff tank, after which it runs in part to a nearby stagnant pond and the remainder to alfalfa land some two or three miles away. Complaint against odors about the pond and the raising of the ground water level in the vicinity are inducing the city to consider high grade treatment works, after which the irrigation companies will accept the water. In the opinion of the bureau, this is a policy which a great many of the towns now employing disposal by irrigation will be forced to adopt as congestion of habitation about their sewer farms continues to increase.

Plasanton—The sewage is passed through a septic tank where it is poorly clarified, following which it runs indefinitely into ditches on the city sewer farm. Mosquitoes are breeding prolifically therein. It has been suggested that the practice of rotation of flow to each ditch in succession be adopted to destroy the mosquitoes.

Livermore—Sewage disposal comprises a septic tank and a sewer farm planted to alfalfa, orchard and cabbage. The tank is clarifying poorly, indicating that cleaning is needed. Due regard seems to be had for the proper principles of disposal of the sewage by the furrow method on cabbage and orchard and broad irrigation on the alfalfa.

Stockton—Study of sewage disposal problem of this city has been begun. Inadequate dilution of the sewage now being discharged into Mormon Slough and use of the water below for domestic purposes have made improvements necessary.

Sonoma—Improper handling of sewage at the city farm has continued to result in a portion of the sewage overflowing into the nearby creek. It is hoped that the city officials may be brought to appreciate the seriousness of this condition and conscientiously carry out the instructions of this bureau, thus avoiding forfeiture of its permit.

Calistoga—Sewage is being disposed of on city land without reaching Napa River. Due to the compact nature of the soil, this disposal can be successfully continued only by persistent efforts in keeping soil loose and open. In all likelihood more land will have to be made available for sewage disposal, either by purchase or by agreement with neighboring farmers.

Cloverdale—No sewage reaches the Russian River from this city during summer months. The sandy land on which the sewage is disposed of presents an unusually pleasing appearance for a sewage farm. The sewage receives no preliminary treatment but it is intelligently handled, being intermittently distributed on different areas which are properly graded and frequently plowed.

Santa Maria—The city engineer who has charge of the disposal plant is conscientiously endeavoring to obtain efficient operation and it appears that this plant in the future should be successful. The Imhoff tank is of faulty design in some respects and certain alterations have been recommended.

Healdsburg—Sewage is now being disposed of by seepage into gravel and sand bordering on Dry Creek, instead of directly into the creek as formerly.

Ukiah—Sewage was still flowing directly into Russian River at time of visit. It is planned to proceed at an early date with development of the city farm for broad irrigation in order that summer sewage flow may be kept out of the river. This will necessitate installing a pumping plant.

Beverly Hills—The recently completed sprinkling filter plant appears to be delivering an effluent of good quality. Certain features of operation have not yet been thoroughly adjusted and will require a few alterations and some experimentation.

Ventura—Discharge of sewage into the ocean has resulted in serious nuisance from sewage matter being washed back onto the beach. The city is planning on building treatment works, the character of which has not yet been decided upon.

Ventura, California School for Girls—This institution is new and has been occupied only for a few weeks. Sewage is passed through a septic tank and then discharged into a dry wash tributary to Ventura River. More elaborate treatment will probably be necessary eventually to avoid nuisance.

Paso Robles—Money has been voted for treatment works but will not be available until December. In the meantime, sewage is being disposed of on the sandy bed of Salinas River by ditching and endeavoring to facilitate rapid seepage. A number of suggestions aimed to improve this method of disposal have been made by this bureau in order that the nuisance may be kept at a minimum.

WATER SUPPLIES.**Applications for Permits.**

Escondido—To continue to supply water from wells near Escondido Creek.

Santa Paula (*Santa Paula Water Works, a corporation*)—To continue to furnish water from Santa Paula Creek.

Eureka—To continue to supply water to Eureka and adjacent territory from Elk River and tributaries.

Palo Alto, Hospital and School for Convalescent Children—To furnish water from three wells near Los Trancos Creek.

Kingsburg—To continue to supply water from wells located in said city.

Visalia (*Visalia City Water Company*)—To continue to supply water from four pumping stations, original source being wells.

Permits Granted.

Santa Rosa—Temporary permit to continue to supply water from city wells and tunnel, pending the making of improvements to the tunnel supply.

Kingsburg—Permit to supply water from city wells.

Visalia (*Visalia City Water Company*)—Permit to supply water from four existing pumping stations, original source being wells in the vicinity.

Plans Filed—None.**Investigations, Inspections and Reports.**

Modesto, Turlock, Madera, Clovis, Dinuba, Reedley, Selma, Fowler, Kingsburg, Tulare, Hanford, Visalia, Exeter, Lindsay, Porterville and Bakersfield—The water supplies of the above towns were inspected. Water supply development is very similar in all cases, being derived from wells all the way from 50 to 800 feet deep from which the water is pumped by motor-driven pumps, usually centrifugal, directly into the mains with one or more elevated tanks on the system acting as supply equalizers. In some cases a gasoline engine for standby supply is provided. In case of fire special fire pumps are utilized or connection of two centrifugal pumps in series is made, pumping directly into the mains, the tank being shut off of the system. In nearly all cases the pumping apparatus is placed in a pit, sometimes 40 feet deep on account of low water level in the wells in the valley. All supplies were examined bacteriologically and found to be safe, though some suspicion is attached to the Tulare supply, both in the original sampling and in a repeat sampling. Wells here are from 40 to 50 feet deep. Ownership of these supplies is usually municipal. In Selma the supply is owned by the Selma Water Company, a subsidiary of the San Joaquin Light and Power Company. The Hanford supply is owned by the Hanford City Water Company. The Visalia supply is owned by the Visalia City Water Company. The Bakersfield supply is owned by the Kern City Water Company and by the Electric Water Company.

Merced—The supply is furnished by the Crocker-Huffman Company, obtained in part from wells of excellent quality and in part from Yosemite Lake, three miles from town, fed by the irrigation canal of the company heading near Merced Falls about 25 miles away. Though the lake is large, arrangement of inlet and irrigation outlet with the

domestic intake tower about halfway between does not permit of much actual storage. The result is that only insignificant improvement by sedimentation occurs in the lake. At great expense, approximately \$40,000 it is understood, the company has cut an irrigation by-pass around the lake so that in the future it will be possible to admit only snow water to the lake, to be used solely for domestic purposes. Undoubtedly cleaner and safer water in Merced will result, but the likelihood of algæ development threatens even more unsurmountable difficulties.

Byron Hot Springs—This resort is compelled to use San Joaquin River water, pumped two miles to the hotel. The water is delivered to a 20,000 gallon tank to which is added at the time of filling 10 pounds of alum and 16 pounds of lime, both in solution. Coagulation results immediately and after 24 hours' settling the water is drawn off through a swivel pipe floated on the surface by a barrel, into a small clear water storage tank. Treatment reduces the turbidity from 50 to 0 p.p.m.; the bacteria from 1,700 to 18 on gelatin and from 200 to 2 on agar, per c.c. *B. coli* are reduced from 0.5 per c.c. to 0 in 10 c.c., or the water is converted from an extremely dangerous supply into one thoroughly safe. This method of treatment is applicable to household use by farmers along both the San Joaquin and Sacramento rivers where turbidity and pollution are such extremely serious factors.

Antioch—Water supply is derived from the San Joaquin River, chlorinated and filtered. From recent tests it appears that less than three pounds of chlorine per million gallons is insufficient for disinfection and that complete removal of turbidity is possible with one grain of aluminum sulphate per gallon, followed by filtration through pressure filters without a coagulating period. It appears that coagulation is unusually rapid in this water.

Santa Rosa—Water is supplied by two systems, one municipally and one privately owned. The municipal supply is derived from underground sources and with improvements, now under way and contemplated, should be of acceptable quality. The main private supply is of surface origin and subject to pollution. Chlorination of this water has been recommended. As an emergency supply the company also has a large spring which is fouled by surface wash and should be more adequately protected.

Ventura—Water is derived from two sources, namely Ventura River and deep wells. The well supply is of satisfactory sanitary quality but has been objected to on account of extreme hardness and disagreeable taste. The river drains a large and populous watershed and chlorination of this supply has been recommended.

LABORATORY WORK.

Bacteriological examinations of water—269, of which 158, or 59 per cent showed contamination.

Bacteriological examinations of swimming pools—3.

Bacteriological examinations of sewage—3.

Chemical examinations of water—270 (partial).

REPORT OF THE BUREAU OF FOODS AND DRUGS FOR JULY, 1916.

E. J. LEA, M.S., Director.

Two hundred and ninety-six samples of foods, drugs and miscellaneous materials were received at the laboratory during the month of July.

Official Samples.

Foods.

| | |
|----------------------------|-------|
| Beverages ----- | 11 |
| Bread, improved ----- | 1 |
| Butter ----- | 1 |
| Chocolate ----- | 2 |
| Cocoa ----- | 2 |
| Coffee ----- | 3 |
| Condiments ----- | 11 |
| Confectionery ----- | 1 |
| Extracts ----- | 10 |
| Ice cream ----- | 2 |
| Jam ----- | 2 |
| Liquor ----- | 26 |
| Meat ----- | 18 |
| Milk ----- | 3 |
| Pastry ----- | 6 |
| Soda, bicarbonate of ----- | 1 |
| Spices ----- | 3 |
| Syrups, fountain ----- | 7 |
| Vegetables, canned ----- | 2 |
| Vinegar ----- | 3 |
| Walnut meats ----- | 1 |
| | — 116 |

Drugs.

| | |
|----------------------------|------|
| Aspirin ----- | 4 |
| Blackberry balsam ----- | 1 |
| Camphor, spirits of ----- | 1 |
| Cupidene ----- | 1 |
| Gas colic cure ----- | 1 |
| Ginger, Jamaica ----- | 1 |
| Ginger, medicated ----- | 1 |
| Hair tonic ----- | 1 |
| Lysol ----- | 1 |
| Magnesia, citrate of ----- | 1 |
| Oil— | |
| Bergamot ----- | 1 |
| Camphorated ----- | 7 |
| Chinese ----- | 1 |
| Sandalwood ----- | 1 |
| Sweet ----- | 1 |
| Tincture iodine ----- | 4 |
| Tincture iron ----- | 1 |
| Water, mineral ----- | 1 |
| Veronal tablets ----- | 1 |
| | — 31 |

Beverages. The beverages were largely soft drinks imitating natural products. Most of them contained coal tar color and artificial flavor which were not declared.

Butter. The butter sample was taken from a lot of four hundred and twenty-one pounds of so-called "ladle" butter for bakers' use. A large percentage of this butter was excessively rancid and unfit for human consumption.

Coffee. The coffee samples were taken from restaurants, which advertised on their bills of fare "Coffee," whereas the product served contained chicory, cereals, etc.

Condiments. The condiments consisted largely of catsups and spices. The catsups, generally speaking, show considerable improvement over the samples formerly collected.

Extracts. Nearly all of the extract samples were highly diluted; some contained artificial color not declared.

Liquors. The liquor samples represent whiskies, gins, vermouths, cordials and absinthe. The sale of absinthe is prohibited by Food Inspection Decision No. 147. The other liquors were largely substitute products. Nearly all of these were sold in original bottles, which had been refilled from cheap, inferior stocks.

Meats. As usual, many butchers were caught using the prohibited sulfur dioxid in Hamburger steak. Some of the meat samples contained cereal which was not properly declared by sign or label.

Pastry. The pastry samples consisted of macaroons which were adulterated with, approximately, 50 per cent of wheat flour.

Spices. The spices consisted of inferior, worthless material having little or no spice value.

Syrups. Most of these syrups, like the beverages, contained artificial color and artificial flavor which were not declared.

Vegetables. One sample of corn, which had been sweetened with cane sugar, was labeled "Sugar Corn."

One sample of French peas was collected which contained sulphate of copper, which is prohibited.

Vinegar. Two of the three vinegar samples were sold as cider vinegar, whereas they had been diluted with water and other ingredients added.

Walnut Meats. The one sample of walnut meats was obtained from a confectioner, and contained dead insects; was rancid and unfit for human consumption.

Aspirin. The four samples of aspirin collected were entirely imitation products, containing no aspirin at all. They were composed of various materials, including tartaric acid, milk sugar and starch.

Jamaica Ginger. The Jamaica ginger was collected at a country drug store and was more than 50 per cent deficient in strength.

Magnesia. The citrate of magnesia was not made in accordance with the United States Pharmacopœia. Tartaric acid had been substituted for citric acid and the proportion of the ingredients was not correct.

Oil of Bergamot. The sample examined at the laboratory was highly adulterated with other oil.

Camphorated Oil. Nearly all of the camphorated oils collected this month were up to the standard.

Chinese Oil. This sample was contained in a very small, Chinese bottle, with a label in Chinese. In addition, it contained a label in English which claimed that the product would cure almost any kind of ailment.

Sandalwood Oil. This sample was almost entirely a substitute product.

Tincture of iodine. These samples were slightly deficient in iodine and two of them contained practically no potassium iodide.

Veronal tablets. This sample was an imitation product containing little or no veronal.

Unofficial Samples.

Foods.

| | | |
|------------------------|----|----|
| Condiments ----- | 4 | |
| Extracts ----- | 1 | |
| Jams and jellies ----- | 1 | |
| Liquors ----- | 4 | |
| Milk, condensed ----- | 21 | |
| Spices ----- | 4 | |
| | — | 35 |

Drugs.

| | | |
|----------------------|---|---|
| Lithia tablets ----- | 5 | |
| | — | 5 |

Miscellaneous.

| | | |
|------------------|---|----|
| Cigarettes ----- | 2 | |
| Tobacco ----- | 1 | |
| | — | 3 |
| | | — |
| | | 43 |

Milk, Condensed. A large number of condensed milk samples were collected for the purpose of investigating their condition from a bacteriological standpoint. We have recently found that a large amount of condensed *skimmed* milk on sale in this state contains an excessive amount of bacteria, some of which are of a decidedly objectionable character. The question arose as to whether any of the condensed whole milks were in a similar condition. More than one dozen different brands of condensed whole milks were examined with the result that none of them were found to contain excessive bacteria of any variety. The samples were comparatively free from dirt and extraneous material. The condition of the two brands of condensed *skimmed* milk examined at this laboratory would seem to indicate carelessness in the handling of this product, as the samples were dirty and contained excessive bacteria of an objectionable character.

*State Institution Samples.**Foods.*

| | |
|--------------------------|---|
| Baking powder substitute | 1 |
| Beans | 3 |
| Cheese | 2 |
| Chicory | 1 |
| Chocolate | 1 |
| Cocoa | 1 |
| Coffee | 4 |
| Condiments | 1 |
| Corn meal | 1 |
| Extracts | 2 |
| Flour | 3 |
| Fruit, canned | 6 |
| Fruit, dried | 2 |
| Gelatine | 2 |
| Hominy | 1 |
| Lard | 2 |
| Macaroni | 1 |
| Oil, salad | 1 |
| Oysters, canned | 1 |
| Peas, dried | 1 |
| Rice | 1 |
| Salt | 3 |
| Spaghetti | 1 |
| Spice | 2 |
| Sugar | 4 |
| Syrup | 4 |
| Vegetables, canned | 3 |
| Vermicelli | 1 |
| Vinegar | 3 |

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Miscellaneous.

| | |
|-------------------|----|
| Ammonia | 2 |
| Bluing | 1 |
| Cleanser | 2 |
| Disinfectant | 2 |
| Lye | 2 |
| Shoe polish | 1 |
| Soap | 8 |
| Soap chips | 1 |
| Tobacco | 22 |
| Water, irrigation | 1 |

42

101

Baking Powder Phosphate. This sample was examined to determine its efficiency as a substitute for cream of tartar. It was found nearly equal to cream of tartar and costs but 19 cents a pound, whereas cream of tartar, at the present time, costs more than four times as much.

Chocolate. The chocolate sample consisted of sweetened cocoa, whereas the specifications call for chocolate. The delivery, represented by this sample, was rejected, as it is not proper to pay a chocolate price for cocoa and sugar.

Flour. Two of the flour samples conformed to the specifications. One sample was deficient in protein.

Oysters. This sample was found to consist of soft and broken material, with no whole oysters in the can. The product was decomposed to such an extent that the shipment was rejected.

Vegetables. The vegetables consisted of canned string beans and peas. The string beans contained excessive strings, were tough and the product did not conform to the specifications.

Vinegar. Two of the vinegar samples consisted of cheap, distilled vinegar, whereas the specifications called for cider vinegar. This shipment was rejected.

Ammonia. One sample of ammonia was deficient in strength and, therefore, was rejected.

Bluing. The sample of bluing contained excessive filler and was otherwise inferior in quality. The shipment was rejected.

Shoe Polish. The shoe polish consisted of an inferior article and did not conform to specifications.

Soap. Nearly all of the soap samples conformed to the specifications; some of them were high in water content, but were otherwise unobjectionable.

Tobacco. The samples of tobacco represented different varieties of smoking tobacco. Only three out of the twenty-two samples consisted of pure tobacco. The other samples contained from 5 per cent to 60 per cent of tobacco stems, foreign leaves, stems, etc. Many of the samples contained excessive sand and dirt; more than one-half of them contained moldy material. In several cases the tobacco in the samples was deficient in strength, having but little tobacco odor or taste. In other cases, the tobacco strength was very pronounced. Nearly all of the samples had been treated with a soluble material having more or less flavoring properties.

Water. This sample was analyzed for one of the state hospitals in order to determine its fitness for irrigation purposes. The sample contained excessive sodium chloride, which would be deleterious to vegetation unless the ground upon which it would be used could be properly drained.

Cold Storage Samples.

| | |
|-------------|---|
| Butter | 1 |
| Eggs, dried | 1 |
| Meat | 1 |
| Poultry | 1 |
| Walnuts | 1 |
| — 5 | |

All of the cold storage samples, except the dried eggs, were unfit for human consumption and the lots of material, which these samples represented, were destroyed.

Articles in Cold Storage Condemned upon Physical and Chemical Examination as Unfit for Food, July, 1916.

| Material | Amount | Condition | Locality | Disposition |
|--------------------|----------|------------|---------------|-------------|
| Chicken ----- | 250 lbs. | Decomposed | San Francisco | Denatured |
| Lamb tongues ----- | 2 cases | Decomposed | San Francisco | Denatured |
| Liver ----- | 100 lbs. | Decomposed | San Francisco | Denatured |
| Meat scraps ----- | 800 lbs. | Decomposed | San Francisco | Denatured |
| Pheasants ----- | 500 lbs. | Decomposed | San Francisco | Denatured |
| Pork loins ----- | 50 lbs. | Decomposed | San Francisco | Denatured |
| Poultry ----- | 30 lbs. | Decomposed | Los Angeles | Denatured |
| Poultry ----- | 600 lbs. | Decomposed | Los Angeles | Incinerated |
| Spare ribs ----- | 50 lbs. | Decomposed | San Francisco | Denatured |

Articles of Food Condemned upon Physical and Chemical Examination as Unfit for Food, July, 1916.

| Material | Amount | Condition | Locality | Disposition |
|----------------------------------|-------------|-------------|-----------------|-------------|
| Butter ----- | 221 lbs. | Decomposed | San Francisco | Denatured |
| Butter ----- | 42 lbs. | Decomposed | Oakland ----- | Denatured |
| Cod ----- | 50 lbs. | Decomposed | San Francisco | Denatured |
| Drugs ----- | 39 pkgs. | Wormy ----- | San Francisco | Destroyed |
| Meats ----- | 20 lbs. | Decomposed | Port Costa --- | Destroyed |
| Medicines ----- | 287 bots. | Adulterated | San Francisco | Destroyed |
| Miscellaneous canned goods ----- | 5,000 lbs. | Decomposed | San Francisco | Incinerated |
| Mustard, ground ----- | 2 lbs. | Decomposed | San Francisco | Destroyed |
| Salmon ----- | 1,220 cans | Decomposed | San Francisco | Incinerated |
| Tomatoes and pears-- | 902 gals. | Decomposed | San Francisco | Incinerated |
| Tomato pulp ----- | 135 gals. | Decomposed | Los Angeles --- | Destroyed |
| Tomato puree ----- | 1,438 gals. | Decomposed | Los Angeles --- | Destroyed |

Convictions Under the Pure Food and Drugs Act Reported During July.

| Name of article | Offense | Accused dealer | Locality | Penalty |
|-----------------------------|---------------------------------|---|--------------------|---------------|
| Bitters and extracts----- | Adulterated and mislabeled----- | Weinstein Co.----- | San Francisco----- | O. R. 90 days |
| Chopped meat----- | Adulterated----- | Phillip Buckman, Prop., Sut- ter Fort Meat Market----- | Sacramento----- | Fined \$10.00 |
| Chopped meat----- | Adulterated----- | Kwong Lung Co.----- | San Francisco----- | Fined 5.00 |
| Chopped meat----- | Adulterated----- | Noel Casenave----- | San Francisco----- | O. R. 30 days |
| Chopped meat----- | Adulterated----- | Caesar Bartolizzi----- | San Francisco----- | Fined \$10.00 |
| Chopped meat----- | Adulterated----- | Kwong Lung Co.----- | San Francisco----- | Fined 5.00 |
| Chopped meat----- | Adulterated----- | P. Cotsifos----- | San Francisco----- | Fined \$10.00 |
| Cider----- | Adulterated and mislabeled----- | J. Downham----- | San Francisco----- | Fined 5.00 |
| Essence Jamaica ginger----- | Adulterated and mislabeled----- | L. Rothenberg----- | San Francisco----- | O. R. 30 days |
| Gin----- | Adulterated and mislabeled----- | Lodge Cafe, Inc.----- | Oakland----- | Fined \$5.00 |
| Gin----- | Adulterated and mislabeled----- | Louis Caffaro----- | Sacramento----- | Fined 15.00 |
| Jamaica ginger----- | Adulterated and mislabeled----- | Chas. Segalis----- | San Francisco----- | Fined 10.00 |
| Lemon extract----- | Adulterated and mislabeled----- | A. Bloom----- | San Francisco----- | Fined 5.00 |
| New Life oil----- | Adulterated and mislabeled----- | L. C. Presley----- | San Francisco----- | O. R. 30 days |
| Nitre, spirits----- | Adulterated and mislabeled----- | Isidor Weinstein----- | San Francisco----- | O. R. 90 days |
| Peas, canned----- | Adulterated and mislabeled----- | B. Dely'Oca & Bro.----- | San Francisco----- | Fined \$10.00 |
| Sausage----- | Mislabeled----- | Linsey & Ostrow----- | San Francisco----- | Fined 5.00 |
| Sausage----- | Mislabeled----- | C. Goessel----- | San Francisco----- | Fined 10.00 |

Cases Referred to District Attorney, July, 1916.

| Name of article | Offense | Accused dealer | Locality |
|-----------------------------|--|---|---------------|
| Ammonia, aromatic spirits. | Adulterated and mislabeled. and required by U. S. P. | G. M. Luttrell, Druggist. | Santa Rosa |
| Ammonia, aromatic spirits. | Adulterated and mislabeled. and required by U. S. P. | Gillen's Drug Store, C. J. Gillen. | Santa Cruz |
| Ammonia, aromatic spirits. | Adulterated and mislabeled. and required by U. S. P. | Farrington & Rodgers. | Santa Cruz |
| Ammonia, aromatic spirits. | Adulterated and mislabeled. and required by U. S. P. | St. Rose Drug Store, Wm. McK. Stewart. | Santa Rosa |
| Aspirin | Adulterated and mislabeled. and substitution of other materials. | A. D. Davidson & Co. (Guarantor). | Los Angeles |
| Camphorated oil | Adulterated and mislabeled. and substitution of other material. | Belden & Upp, B. C. Belden and A. F. Upp, Props. | Santa Rosa |
| Camphorated oil | Adulterated and mislabeled. and substitution of other material. | Amsden & Henderson. | Santa Cruz |
| Camphorated oil | Adulterated and mislabeled. and substitution of other material. | St. Rose Drug Store, Wm. McK. Stewart. | Santa Rosa |
| Coffee | Adulterated and mislabeled. of other materials. | O. K. Restaurant, C. Martin, Prop. | San Francisco |
| Coffee | Adulterated and mislabeled. of other materials. | Chicago Cafe, T. P. Kerhulas, Prop. | San Francisco |
| Ginger, extract of. | Adulterated and mislabeled. of other materials. | Rathjen Bros., Inc., Chas. Stern, Sec. | San Francisco |
| Ginger, Jamaica, essence of | Adulterated and mislabeled. of other materials. | The Rothenberg Co., L. Rothenberg, Prop. | San Francisco |
| Ginger, essence of Jamaica. | Adulterated and mislabeled. of other materials. | L. Chassagne & Co., Chas. Segalis and J. Plante. | San Francisco |
| Ginger, essence of Jamaica. | Adulterated and mislabeled. of other materials. | LeVaggi & Co., Inc., J. LeVaggi, Pres. | San Francisco |
| Liquor-- | | | |
| Gin | Adulterated and mislabeled. of inferior material. | Oriental Cafe, T. H. Yee, Prop. and Mgr. | Sacramento |
| Gin | Adulterated and mislabeled. of inferior material. | Brasch's Saloon, S. D. Brasch and A. Nelson, Props. | Richmond |
| Brandy, blackberry | Adulterated and mislabeled. of inferior material. | The Rothenberg Co., L. Rothenberg, Prop. | San Francisco |
| Gin, A. V. H. | Adulterated and mislabeled. of other materials. | The Germania, Walter Schmid, Prop. | Santa Rosa |
| Gin, A. V. H. | Adulterated and mislabeled. of other materials. | The Club Saloon, Ed. Allvonn, Prop. | Santa Rosa |

| | | | |
|------------------------------|---|--|---------------|
| Vermouth ----- | Adulterated and mislabeled. Substitution of other materials. | Do Drop Inn "Saloon," N. Bosmos, Prop.- | San Francisco |
| Meat----- | Adulterated and mislabeled. Substitution of other materials. | V. Kozak ----- | Los Angeles |
| Chopped ----- | Adulterated and mislabeled. Contains benzoate of soda. | Joseph Dont, Prop., Meat Market----- | Santa Rosa |
| Chopped ----- | Adulterated. Sulfur dioxide----- | Pete's Lunch Place, P. Cotsifos, Prop.--- | San Francisco |
| Pork sausage ----- | Adulterated. Sulfur dioxide----- | Pioneer Meat Market, C. W. Koch, Prop.--- | Suisun |
| Oil of pineapple----- | Adulterated. Sulfur dioxide----- | Pioneer Meat Market, C. W. Koch, Prop.--- | Suisun |
| Oil of sandalwood----- | Adulterated and mislabeled. Substitution of other materials. | Los Angeles Candy Factory (Guarantor)----- | San Francisco |
| Oil, sweet ----- | Adulterated and mislabeled. Substitution of other materials. | ----- | ----- |
| Olives, California ripe----- | Adulterated and mislabeled. Substitution of other materials. | St. Rose Drug Store, Wm. McK. Stewart--- | Santa Rosa |
| Peppermint, essence of----- | Adulterated and mislabeled. Consists of filthy, decomposed vegetable tissue. | Los Angeles Olive Growers' Association--- | Los Angeles |
| Peppermint, essence of----- | Adulterated and mislabeled. Contains artificial color. | John H. Schroeder, Prop., Liquor Store--- | Oakland |
| Peppermint, extract of----- | Adulterated and mislabeled. Contains artificial color. | E. Martinoni, Prop., Liquor Dealer----- | San Francisco |
| Pickles, mustard ----- | Adulterated and mislabeled. Substitution of other materials. | LeVaggi Co., Inc., J. LeVaggi, Pres.----- | San Francisco |
| Syrup, raspberry ----- | Adulterated and mislabeled. Contains starch and curcuma; mustard, only trace. | Pacific Coast Salvage Co., Maurice Rosenthal. | San Francisco |
| Flavor, raspberry ----- | Adulterated and mislabeled. Contains coal tar color and artificial flavor. | The Chanquet Bros. Liquor Co., J. F. Berriex, Mgr. | San Francisco |
| Tomato----- | Adulterated and mislabeled. Contains coal tar color and artificial flavor. | The Irvine Co., A. and N. Irvine----- | San Francisco |
| Catsup ----- | Adulterated and mislabeled. Filthy and decomposed vegetable substance. | Lewis Packing Co. (Guarantor). Referred on seven counts. | San Francisco |
| Catsup ----- | Adulterated and mislabeled. Filthy and decomposed vegetable substance. | George Watanabe, Home Restaurant----- | Vallejo |
| Paste ----- | Adulterated and mislabeled. Filthy and decomposed vegetable substance. | P. Truzzetti (Guarantor)----- | Oakland |
| Vanilla Cream Flavor----- | Adulterated and mislabeled. Substitution of other materials. | The Irvine Co., A. and N. Irvine----- | San Francisco |

REPORT OF BUREAU OF REGISTRATION OF NURSES FOR AUGUST, 1916.

ANNA C. JAMMÉ, R.N., Director.

The Results of the June Examination.

The results of the examination held June 13-14 were approved at the regular meeting of the State Board of Health, August 5th. The number of applicants who entered the examination was 197. Of these, 152 passed the required general average of 70 per cent and 45 failed to pass. The percentage of failures was 23 per cent as against 24 per cent at the last examination. Of those who passed, ten were graduates from other states; of those who failed, four were out of state graduates and ten graduated previous to 1914. This makes 142 who were graduated in the state and passed and 41 who were graduated in the state and failed. The two candidates having the highest general average, were each graduates of the Good Samaritan Hospital, Los Angeles.

The Next Examination.

The next examination will be held simultaneously in Sacramento, San Francisco and Los Angeles on October 18-19, 1916.

Nurses desiring to take this examination must apply to the Bureau of Registration of Nurses, Sacramento, before October 1, 1916. Application papers will not be received after October 15th.

Training Schools from which Applicants Graduated.

| Name | Number applied | Number failed | Number passed |
|--|-------------------|------------------|------------------|
| Angelus Hospital, Los Angeles..... | 7 | 2 | 5 |
| Agnew Sanitarium, San Diego..... | 3 | 0 | 3 |
| Burnett Sanitarium, Fresno..... | 6 | 1 | 5 |
| Buena Vista Hospital, San Francisco..... | 5 | 2 | 3 |
| California Hospital, Los Angeles..... | 7 | 2 | 5 |
| Canada | 1 | 1 | 0 |
| Children's Hospital, Portland, Maine..... | 1 | 0 | 1 |
| Clara Barton Hospital, Los Angeles..... | 3 | 2 | 1 |
| Children's Hospital, San Francisco..... | 6 | 3 | 3 |
| Columbia Hospital, San Jose..... | 3 | 0 | 3 |
| Dameron Hospital, Stockton..... | 4 | 1 | 3 |
| Evans Hospital, Modesto..... | 1 | 0 | 1 |
| East Bay Sanitarium, Oakland..... | 1 | 0 | 1 |
| French Hospital, San Francisco.. .. | 2 | 1 | 1 |
| Fabiola Hospital, Oakland..... | 3 | 0 | 3 |
| Glendale Sanitarium | 3 | 0 | 3 |
| Good Samaritan Hospital, Los Angeles..... | 10 | 1 | 9 |
| German Hospital, San Francisco..... | 2 | 1 | 1 |
| Hahnemann Hospital, Chicago..... | 1 | 1 | 0 |
| Holy Cross Hospital, Salt Lake, Utah..... | 1 | 0 | 1 |
| Los Angeles Infirmary, Los Angeles..... | 5 | 0 | 5 |
| Leonard Morse Hospital, Natick, Mass..... | 1 | 0 | 1 |
| Los Angeles County Hospital..... | 14 | 1 | 13 |
| Loma Linda Sanitarium, Loma Linda..... | 8 | 0 | 8 |
| Lane Hospital, San Francisco..... | 6 | 2 | 4 |
| Samuel Merritt Hospital, Oakland..... | 3 | 0 | 3 |
| Mater Misericordiæ Hospital, Sacramento..... | 3 | 0 | 3 |
| Mary's Help Hospital, San Francisco..... | 6 | 1 | 5 |
| Mount Zion Hospital, San Francisco..... | 4 | 2 | 2 |
| McNutt Hospital, San Francisco..... | 5 | 3 | 2 |
| New Haven, Conn..... | 2 | 0 | 2 |
| New York City Hospital..... | 1 | 0 | 1 |
| Northern Pacific Hospital, Brainerd, Minn..... | 1 | 0 | 1 |

Training Schools from which Applicants Graduated—Continued.

| Name | Number applied | Number failed | Number passed |
|---|-------------------|------------------|------------------|
| Nicholls | 1 | 0 | 1 |
| O'Connor Sanitarium, San Jose..... | 2 | 0 | 2 |
| Pacific Hospital, Los Angeles..... | 1 | 1 | 0 |
| Paradise Valley Sanitarium, National City..... | 1 | 1 | 0 |
| Providence, Mobile, Alabama..... | 1 | 0 | 1 |
| Pasadena Hospital, Pasadena..... | 3 | 0 | 3 |
| Peninsula Hospital, Palo Alto..... | 5 | 0 | 5 |
| Ramona Hospital, San Bernardino..... | 1 | 1 | 0 |
| Riverside Hospital, Riverside..... | 1 | 1 | 0 |
| Redlands Hospital, Redlands..... | 2 | 0 | 2 |
| St. Helena Sanitarium, Sanitarium..... | 9 | 0 | 9 |
| San Antonio Hospital, Uplands..... | 2 | 0 | 2 |
| St. Francis Hospital, San Francisco..... | 5 | 2 | 3 |
| St. Luke's, San Francisco..... | 2 | 0 | 2 |
| San Francisco Hospital, San Francisco..... | 6 | 4 | 2 |
| Santa Rosa Hospital, Santa Rosa..... | 2 | 1 | 1 |
| Sequoia Hospital, Eureka..... | 2 | 0 | 2 |
| San Diego County Hospital, San Diego..... | 2 | 0 | 2 |
| Santa Clara County Hospital, Santa Clara..... | 1 | 0 | 1 |
| St. Mary's Hospital, San Francisco..... | 3 | 2 | 1 |
| Sacramento County Hospital, Sacramento..... | 1 | 0 | 1 |
| St. Joseph's Hospital, San Francisco..... | 2 | 2 | 0 |
| Sydenham Hospital, New York..... | 1 | 1 | 0 |
| Sisters' Hospital, Los Angeles..... | 2 | 0 | 2 |
| Sacred Heart Hospital, Spokane, Wash..... | 1 | 1 | 0 |
| St. Mary's, Brooklyn, N. Y..... | 1 | 0 | 1 |
| The White Hospital..... | 3 | 1 | 2 |
| Union Labor Hospital, Eureka..... | 1 | 0 | 1 |
| University of California Hospital, San Francisco..... | 3 | 0 | 3 |
| Woolford Infirmary, Chattanooga, Tenn..... | 1 | 0 | 1 |
| Totals | 197 | 45 | 152 |

NAMES OF SUCCESSFUL APPLICANTS

| | |
|-------------------------|-------------------------------|
| Anderson, Mary Eliza | Carlson, Goldie Axiline |
| Anderson, Ebba Victoria | Coonan, Julia Theresa |
| Applegate, Vivian Irene | Coulter, Grace Margaret |
| Arnold, Agnes | Crosby, Ethel Durkee |
| Avery, Dorcas Churchill | Carey, Charlotte W. |
| Basnett, Vera A. | Cookson, Hazel Elfrida |
| Briggs, Susan May | Cookson, Alice Edith |
| Behrman, Ella Singer | Dittnock, Ella Frieda |
| Buckard, Edith Emily | Dore, Frances |
| Bailey, Nell | de Gomez, Mabel |
| Barkan, Phoebe Bunker | Dunn, Margaret |
| Borne, Susan A. | Day, Bessie Lenore |
| Babcock, Nettie C. | Daniel, E. Maud |
| Byington, Helen | Downing, Claire Ada |
| Barker, Anna Lois | English, Harriett |
| Burrow, Alice Henrietta | Eckhout, Rachel Hope |
| Boyd, Adeline Helen | Fisher, Elma |
| Brooks, Ruth Margaret | Flynn, Sister Agatha |
| Brown, Robinnette | From, Anna R. |
| Brebner, Elsie Jean | Fitzsimmons, Katherine |
| Benson, Harriet | Friesen, Anna |
| Bloodgood, Helen | Guthrie, Ivy |
| Baker, June Ward | Guerrier, Carrie Snow |
| Cornell, John | Gallaher, Mrs. Florence Sarah |
| Church, Marjorie | Gordon, Clara M. |
| Chapman, Florence | Gongwer, Edyth Marie |
| Cleaver, Ruth E. | Hayden, Valentine |
| Clarke, Eleanor Shirlaw | Holdaway, Reva |
| Crawford, Mary | Hill, Elma E. |

Hatch, Mildred Diana
Harris, Lavinia
Hatch, Bessie I.
Hughes, Helene May
Hight, Florence Burton
Hansen, Else Marie
Hamilton, Muriel
Hargreaves, Juanita Marie
Irish, Julia Irene
Ito, Paul Kiuji
Irving, Helen Elizabeth
Jennings, Martha A.
Klaren, Elizabeth G.
Kish, Mabel
Kelly, Virginia Mae
Kling, Nellie A.
Keesecker, Cora
Larson, Ruth Florence
Lombard, Arabella Abby
LeGro, Emma J.
Laurence, Mary B.
Lawrence, Lorraine Aurelia
Lorimer, Rebecca Adeline
Lindsay, Leora O.
Macfarlane, Clifford
Murray, Helen
Mankins, Mrs. Mary A. H.
Morlan, Ethel I.
McFall, Nadine
Marshall, Hilda Louise
McGrath, Helen Marie
Macfarlane, Edna Roberta
Mayberry, Ave
Meyer, Lillian Henrietta
Mollot, Mrs. Marie
Mills, Elsie
McGeehan, Marie Teresa
Metter, Mabel I.
Mitchell, Elizabeth
Marion, Winifred
Maxwell, Mae Esther
McKinnon, Ethel
Merrill, Grace
Obear, Eva M.
Olson, Irene
Peterson, Effie Caroline
Pendleton, Robert Bruce

Pibel, Gussie Bessie
Prindiville, Loretta J.
Potter, Ruth
Peterson, Helen Ruth
Pilegard, Anne Kathrine
Rodgers, Rose Edna
Relyea, Pearl Anna
Ryan, Anita Imelda
Rusk, Rota Esther
Rasmussen, Anna
Reichhardt, Anna M.
Rusk, Ethel Victoria
Strang, Emma Marie
Spaine, Rose Adele
Saunsby, Dora
Swarthout, Grace Evelyn
Santee, Ethel Ruth
Smith, Isabel J.
Sass, Hazel Ruth
Sperry, Elizabeth B.
Squier, Adeline Maude
Smith, Verna M.
Sparolini, Lolita Myrtle
Smith, Mary E.
Snover, Ruth
Sorsdahl, Olga Otilie
Swanson, Ella Christina
Spriesch, Anna Eleanor
Schenck, Agnes
Tempest, Clementina Stuart
Thompson, Ruth May
Ulvick, Aleda Bernice
Van Witzenburg, Nellie
Wernlund, Florence Axelena
Wygant, Lucie May
Wernlund, Agnes
Wehmeyer, Henrietta Louise
Waughn, Belle
Wyss, Selina
Wallace, Flora Audrey
Whipple, Margaret G.
Ward, Genevieve
Woesner, Oscar
Whitehurst, Thelma Brodbury
White, Elizabeth Alice
Watts, Wauneta
Zielke, Eva A.